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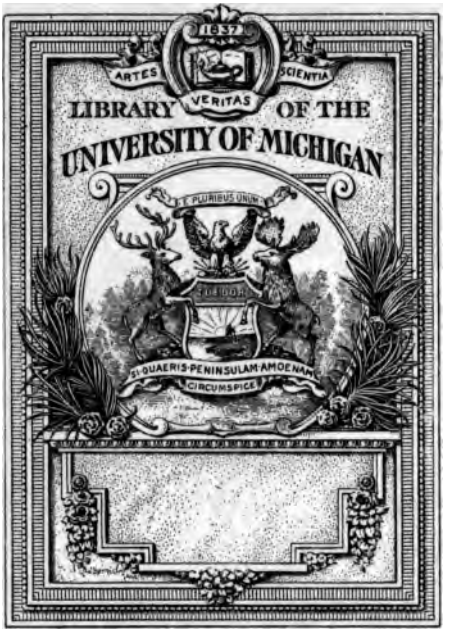
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BIOGRAPHIC CLINICS

VOLUME V

ESSAYS CONCERNING THE INFLUENCE OF VISUAL FUNCTION, PATHOLOGIC AND PHYSIOLOGIC, UPON THE HEALTH OF PATIENTS

BY

GEORGE M. GOULD, M. D.

Editor of AMERICAN MEDICINE, Author of "An Illustrated Dictionary of Medicine," "The Practitioner's Medical Dictionary," etc., "Borderland Studies," "The Meaning and the Method of Life," etc.

PHILADELPHIA
P. BLAKISTON'S SON & CO.
1012 WALNUT STREET
1907

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Printed by
The Maple Press Co.,
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PREFACE.

I THANK the editors and proprietors of the following periodicals for permission to republish the articles herewith reproduced:—*The Lancet, The New York Medical Journal, Annals of Ophthalmology, The Maryland Medical Journal, The St. Louis Medical Review, Albany Medical Annals, American Medicine, St. Paul Medical Journal, The Medical Record, The Journal of The American Medical Association, The Bulletin of the American Academy of Medicine, The Buffalo Medical Journal, Medical Annals, Brooklyn Medical Journal, The Cleveland Medical Journal.*

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TABLE OF CONTENTS.

PREFACE			v
CHAPTER	I.	BIOLOGY AND OPHTHALMOLOGY	13
CHAPTER	II.	THE OCULAR FACTORS IN THE ETIOLOGY OF SPINAL CURVATURES, BY PROFESSOR H. AUGUSTUS WILSON.	35
CHAPTER	III.	A LIFE AND CAREER BLIGHTED BY IGNORED EYESTRAIN	51
CHAPTER	IV.	THIRTY-FIVE YEARS OF TREATMENT BY SEVENTEEN PHYSICIANS FOR STRABISMUS, TINNITUS, HEADACHE, INDIGESTION, EYESTRAIN, ETC.	67
CHAPTER	V.	A CASE OF HYPERCHLORHYDRIA, INDIGESTION, CONSTIPATION, ETC., AS TREATED BY ONE GASTROLOGIST, THREE GENERAL PHYSICIANS, ONE "MECHANO-NEURALIST," ONE HOSPITAL, ONE PROFESSOR OF MEDICINE, AND ONE REFRACTIONIST	83
CHAPTER	VI.	NIL DESPERANDUM AS AN ARTICLE OF THE REFRACTIONIST'S MATERIA MEDICA	91
CHAPTER	VII.	RESECTION OF THE INFRAORBITAL AND SUPRAORBITAL NERVES FOR EYESTRAIN	101

CHAPTER VIII. A CASE OF "NEURASTHENIA" AS TREATED BY TWO GENERAL PHYSICIANS, ONE HOMEOPATH, ONE QUACK, ONE OSTEOPATH, ONE PREGNANCY, THREE OPHTHALMIC SURGEONS, TWO GYNECOLOGISTS, ONE DIAGNOSTICIAN, ONE NEUROLOGIST, ONE RESIDENT SANITARIUM PHYSICIAN, AND ONE REFRACTIONIST 115

CHAPTER IX. ONE PATIENT'S EXPERIENCE WITH TWO GENERAL PHYSICIANS, ONE NEUROLOGIST, ONE LEADING PHYSICIAN, ONE GASTROLOGIST, TWO OPHTHALMIC SURGEONS, ONE DIAGNOSTICIAN, AND ONE REFRACTIONIST 129

CHAPTER X. A CASE OF STERCORACEOUS VOMITING DUE TO EYESTRAIN . . 149

CHAPTER XI. A PROFESSIONAL AND SUCCESSFUL LIFE WRECKED BY ILL-FITTING EYE-GLASSES 157

CHAPTER XII. A CASE OF HYSTERIA DUE TO EYESTRAIN 165

CHAPTER XIII. A CASE IN WHICH "SINKING SPELLS"—"THOUSANDS OF THEM,"—SICK-HEADACHE, VOMITING, ETC., WERE DUE TO EYESTRAIN . . . 173

CHAPTER XIV. THE MYSTERIES AND SOURCES OF SUICIDE 183

CHAPTER XV. A Study of the Contributions to Ophthalmology made by Our Society during the last Thirty-one Years . . . 233
CHAPTER XVI. Eyestrain as a Cause of Diseases of the Digestive Organs . 257
CHAPTER XVII. The Ocular Origin of "Migraine" 281
CHAPTER XVIII. Incurable Eyestrain . . . 315
CHAPTER XIX. Eyestrain and Crime . . . 341
CHAPTER XX. The Ophthalmic Sins of Hospitals. 349
CHAPTER XXI. Ten Types of Ophthalmic Charlatanism 361
CHAPTER XXII. A Conspiracy of Silence . . 375
CHAPTER XXIII. A Historic Parallel . . . 383

BIOLOGY AND OPHTHALMOLOGY.

CHAPTER I.

BIOLOGY AND OPHTHALMOLOGY.

To preserve the keenest and most accurate vision of patients, to save whatever of threatened vision is possible, is the aim and the duty of ophthalmology; that seems so axiomatic as not to need repetition. And yet it has not always been the practice of ophthalmologists. This aim and duty, moreover, has not been recognized as the aim and the practice of what we call *Nature*, or the organismal wisdom, so that there are many and important extensions of this aim and duty on the part of ophthalmologists which have not been seen. In the first place, it is all based upon a biologic fact which has not been observed either by biologists or by oculists—the fact, namely, that in the higher animals, *pari passu* with the evolution, especially of man, the function and perfection of vision has been the condition of locomotion. It has been, indeed, the most fundamental and persistent means of the perfection of the vertebral organism. *Ubi motus, ibi visus est*, is a dominant fact of biologic evolution. Every added differentiation and progress of civilization has been possible only by precedent and causa-

tive perfection of vision. The higher and more disabling the visual imperfection, especially that due to ametropia, the more certain it has been to exclude the unfit in the struggle for existence. The more primitive and barbaric the state of the animal or man the better they could endure the lower degrees of ametropia and visual imperfection. Civilization progressed largely because of the weeding out of the visually unfit or putting them to the lowest tasks. And with the most intense types of present civilization those in the thickest of the fight are disabled exactly in proportion to the visual disabling. The smallest errors of refraction now unfit the sewing women, students, literary workers, professional men, handicraft-laborers, etc., although these errors do not much incapacitate farmers, ranchmen, policemen, railway men, etc. "The exclusion of the unfit" has been much in the minds of biologists, the phrase at least if not the fact; but they must some time perceive that it has depended largely upon visual pathology. Its correlative, the selection of the fit to propagate the phylum, has correspondingly been determined by visual fitness, by the possession of the least ametropic or visually imperfect eyes. The exclusion or the inclusion had been in great part predetermined by visual acuteness, rapidity, and accuracy.

In a word, such inclusion or exclusion has been predetermined by ametropia—that is to say upon com-

paratively infinitesimal imperfections of shape and measurements of the eye-balls. To secure equality of these measurements in the two eyes, binocularity, and the retinal images formed physiologicly, not by pathologic function, have been Nature's great problem. But light, and especially the poor light of night, dark places, etc., is millions of millions times more slight than other stimuli of the body, more instantaneous, more doubtful and deceptive. Hence the fact ignored by scientists and oculists of the enormous difficulty of securing such retinal response as shall safeguard the organism—that is to say of making a perfect pair of eyes. So difficult has been the task that Nature has probably never succeeded in making such a mathematicly perfect pair of eyes; I have never seen a pair of eyes without some ametropia. The failure of the pure scientist or the evolutionist to recognize the role of the ocular mechanism in the developmental history of organisms has prevented much progress that might have come to biology. It has also served to keep ophthalmology from a greatly desirable advance. For it has given ground for the otherwise inexcusable blunder of the old ophthalmology in not realizing its opportunity. It has also indirectly caused the tragedy of general medicine which for a generation has failed to discover the cause of certain systemic diseases of millions of patients. It has therefore had to treat these millions of cases of headache, sickheadache,

nervous and mental diseases, spinal curvature, and especially digestional and nutritional disorders, without etiology, and in the dark, with drugs and rest cures—heaven knows all the mistaken methods—and wholly without success! It has been an amazing and unaccountable thing this neglect of the practical application of the theoretic bases of optics established by Helmholtz, Donders, and others. Except as regards the crude anatomic pathology of the end-products of disease we have had no pathology—for functional pathology is of infinitely more importance than organic pathology, because function always precedes structure. In origin pathology is only abnormal physiology. The ignoring of these facts by ophthalmologists is the most colossal blunder of medicine. As the securing and preservation of the greatest ocular and visual perfection is the condition of evolutional and sociologic validity, so is it, so should it have been of ophthalmologic validity. The organism that most failed visually failed correspondingly in phylogenetic ability, and the old ophthalmology having failed to recognize and apply this truth has also failed as a sociologic factor. It has also proved invalid in the same way. On the whole and in the large it has not recognized the power of low degrees of ametropia to morbidize and exclude the civilized worker. A quarter of a diopter of astigmatism, "too slight to correct or to bother about," say these ignorers, may however wreck

an otherwise sound and useful person, and his life career. Applied science (and medicine is that), is the making a business of science, and the craftsmanship which wilfully denies and ignores a truth thrust upon it for 30 years, is pseudoscience, and, bluntly, it is malpractice.

The primal, causative, and continual source of ocular disablement and of exclusion of the unfit organism is therefore ametropia. The greater the amount and more hurtful the kind of near-work with the eyes, the smaller the amount of ametropia that will suffice to exclude. That is the law which hereafter must govern all medical and sociologic conduct. How may patient, parent, or oculist know if mischief is being done by ametropia, if ametropia exists, of a kind and degree to cause mischief? So subtly, so temporary, so far-removed in time or incidence, so doubtful may be the morbid products of ametropia, either upon the eye, the nervous system, or other bodily organs, that the safer plan would be to have the ametropia of every child diagnosed early in life, and repeatedly throughout life. And by a skilled expert, one who by experience knows and openly confesses that a small amount of ametropia may possibly be the cause of the gravest kinds of disease and in most dissociate organs. It must be done by a believer, by means of a mydriatic, and with the most absolute accuracy obtainable by an expert intellect. Otherwise it will not help.

There are certain kinds of ametropia, *e.g.*, unsymmetric astigmatism, anisometropia, low defects of any kind possible to be overcome temporarily, but impossible for long (all depending upon the amount of near-work demanded), which will in time bring tragedy to almost any civilized worker. These must be looked after, and neutralizing glasses ordered. As for the other kinds of effects, the very high ones are most certain to ruin the eyes, sparing the general system, and to make criminals, suicides, and cranks. If the near-work is demanded of such highly defective eyes, illiteracy, truancy, tragedy, criminality, drunkenness, invalidism, and a hundred kinds of morbidness and failure are sure to result.

But such thoroughgoing work, by means of periodic examinations is, under present conditions, only exceptionally possible; 20,000 trained experts would be required in our country where there are now but a dozen or two. In the meantime how can some partial measure of relief be made effective? The glaring and amazing fact is that the vastly large proportion of suffering in the civilized world of today is caused by diseases concerning which the profession has no knowledge of their etiology, and is entirely powerless to cure. "We treat them, but we do not cure them," said a famous authority to a patient of mine who had been a lifelong sufferer from that easily-cured disease, "migraine." The symptoms thus treated are many

and certain functional disorders of the nervous, circulatory, digestional, and nutritional systems. They are directly responsible for most of the suffering and tragedies of the patient-world (the organic diseases are mostly painless, and death is not the greatest misfortune) and indirectly responsible for the denutrition which prepares the ground for the infectious and organic diseases which have inordinately interested the profession.

Now when a patient with these functional disorders presents himself, why should the physician give drugs of which he knows little, to a patient of which he knows less (histories not taken), for a disease of which he knows nothing? In 35 years hundreds of reports have been made by most reputable physicians that these functional disorders very often are due to eye-strain. Why not demand first expert estimate of the ametropia? Why not order it a second time, if relief does not come, and of another expert? Why not urge a third trial of a third expert? Because it is now manifest that many of our oculists are not experts, and are not believers in the theory. Without belief, no works! Thousands upon thousands have been cured of these diseases by glasses. The duty then becomes imperative thoroughly to exhaust the possibility of cure by this method. Of course millions in America cannot at present secure this expert diagnosis but a way will be broken by which in time thousands

of experts may go to the country, village, and far-away sufferers, at prices which can be afforded by them, and bring to them the relief from the illnesses and failures of a lifetime. Some time an awakened ophthalmology and an aroused profession and an indignant public will rise and demand a new ophthalmology and a new civilization, the servants both of a genuine love and charity, and of a truly medical professionalism. When this new ophthalmology and this new medicine shall come it will adopt the law of evolution that the greatest possible acuteness of binocular vision shall be assured the organism. Failure in this is failure, partial or complete, in the tasks set for us by civilization. And first in importance in securing and retaining this visual equipment will be the method of eliminating poor or morbid vision when it is harmful. Without glasses there is no possibility of extinguishing the defect either by Nature or by man. Nature therefore was forced to extinguish the individual whose ametropia was so great that it disabled the possessor in the struggle for existence. Thus there was a retention of the less ametropic as the propagators of the race. Civilization has come suddenly, Nature is not able to meet the emergency of the thousandfold multiplied tasks, and without glasses the tragedies are a thousand times multiplied. The New Ophthalmology can avoid these by means of stopping the eyestrain which otherwise dooms the civilized sufferer—first

and foremost, of course, by means of accurate diagnosis of the ametropia. Except by a few careful and expert men this is not at present done, and a revolution in undergraduate and postgraduate study is needed to give the necessary accuracy to many needed thousands of oculists. Only an endowed School of Refraction can supply it. No sign of such a school exists.

When the experts of the New Ophthalmology come to their work of insuring every patient the greatest possible binocular acuteness of vision for a life, the second demand, after estimation of the static error of refraction, will be the securing of the physiologic action of the function of accommodation. That is the sole method, not only of preventing amblyopia, heterophoria, and other ocular diseases, but also of preventing reflex ocular diseases of the general system. I see every day the prescriptions of other oculists which make visual function pathologic instead of physiologic. The condition of the binocular acuteness is that there shall be two sharp optical images on the retinas, without morbid activity of the ciliary muscle. A ciliary muscle driven to overuse acts morbidly; it acts more morbidly if it must act against Nature as a sphincter muscle, *i.e.*, in astigmatism; it acts still more morbidly if the two muscles act in disharmony, as in all anisometropia; when unsymmetric astigmatism complicates anisometropia, the disease grows rapidly intolerable. When the defects are high, or, when

unrelieved, one eye must be thrown out of function by Nature, and then amblyopia, the sign, and the sentence of ocular death, arises.

Amblyopia still present after perfect ametropic correction is the demonstration that the retinal image has been habitually too imperfect to retain normal retinal and cerebral optical function. It is the result of the uncorrected ametropia. It is a most serious matter, one commonly neglected, which needs alert watching from the beginning of life to the end of it. It is the thermometer of ocular health; a crude one, it is true, but when its markings of subnormality appear, great injury has already been done. There should be a dozen subgradations of our crude 20-20; and 20-30 or over is most alarming. Proper glasses may bring the vision to normal again but only if they are secured early in life and early in the downward history of the disease. Binocular amblyopia is rare and frightful. One eye may be normalized, both seldom. Amblyopia present in eyes not having been glassed, and continuing with ametropic correction as a test, indicates the seriousness and degree of the morbid process. "Get back to the child" is, as always, the command again repeated.

Heterophoria is the result of ametropia and of amblyopia. It is the second stage of the progress to death. The awful blunder of many ophthalmologists has been to consider it primary and causative. In the eyes of

the profession and of the lay-world all ophthalmology has been disgraced by tenotomomania. The spook still haunts the offices of oculists who have not been the subjects of commissions on the cure of epilepsy; who have not written volumes on "myology" and heterophoria; who do not clip the conjunctiva and call it tenotomy; who do not tenotomize and apply glasses at the same time, but crediting the relief to the tenotomy alone. Heterophorias are preventable by proper glasses ordered sufficiently early; they are usually curable by proper glasses at any time; if not curable by glasses the eye is too nearly dead to be resuscitated by any measure; if not curable by glasses, tenotomy will usually not cure the heterophoria, etc. It is most strange and incomprehensible that good muscle balance is so commonly considered heterophoria, and tenotomy is demanded. This is because the ametropia has not been corrected. The day I write these lines an admirably illustrative case, one of multitudes, comes to hand. A most reputable and famous oculist, of course in New York City, orders a woman invalided by eyestrain all her life, the following correction:

R. +Sph. 1.00+Cyl. 0.50 ax. 10°
L. +Sph. 1.12+Cyl. 0.37 ax. 180°

Now the shame of this "correction" consists in these facts:

1. The woman was to wear these glasses only for

reading, and no glasses were ordered for distance and constant use.

2. She was presbyopic, and her static correction was much higher than the reading correction ordered.

3. She was, of course, not at all relieved of her severe symptoms and the order and demand followed that tenotomy should be submitted to! And what for?

4. For 4° of esophoria—or the most perfect muscle balance in the world! She sought other advice.

The woman's whole life had been drained of nerve force and her nervous and digestive system brutally irritated and morbidized by an accommodation strain measured by two diopters of compound hyperopic astigmatism, for which a great authority had ordered no correction at all for distance, and an imperfect and wrong one for near. And such cases are being made by the thousands.

Ptosis, choroiditis, iridoplegia, cycloplegia, and strabismus, are some of the methods of finally killing an eye, forced upon Nature, when amblyopia and heterophoria, and a hundred types of systemic reflexes have warned in vain, and when the old ophthalmology heard not, and saw not, and refused to hear or see.

Eyestrain is the crude name we have given to the results of errors of refraction. Heterophoria is one because it is usually a result of ametropia, a curative attempt on the part of the ocular wisdom to preserve the best visual result for the organism. Pathology

may be, and in these cases is a round-about method of preventing pathology. If both eyes cannot be made to work well together there is less danger to the organism and its function if one is excluded. The methods of exclusion are amblyopia, local ocular diseases functional and organic, heterophoria, strabismus, etc. The systemic methods of preventing the impairment of vision are by the socalled reflex neuroses, and are also of the nature of a *pis aller;* it is better to upset general health functionally and temporarily, by means of the headaches, sickheadaches, dyspepsias, the multiform nutritional and neurologic diseases which we daily see are the results of eyestrain, than to impair or cripple or blind the eyes which are the *sine qua non* of organismal validity. The lesser of two evils is chosen, and in origin these functional disorders are therefore really preservative and curative. They are simply avoiders of greater harms, and pointers and indications of interference with the less important functions, their injuries being temporary and functional, and possible to overcome. It should be seen that these methods all conspire to shut off the harmful abuse of the eyes by lessening the strain, by deflecting the injuries, at least by postponing the more serious and hurtful activities—in a word by resting the eyes. In our stupidity we have charged Nature with stupidity, and she is infinitely far from stupid. She has never been able to do the impossible, *i.e.*, make a perfect pair of

eyes, but she has been infinitely ingenious in meeting the demands of an unforseen civilization, by devices to prevent the ruin of the organism by blindness and by the effects of the partial blindness we call amblyopia, which unfits children, men, and women, for the tasks our age puts upon them. With our impertinent blundering we have doctored and surgicalized Nature's obviations of the great harms, which are really remedial and preventive of greater evils, by pottering away at the effects, and not seeing the cause which produces the effects. Thus all the tenotomy and "myologic" nonsense, the gastrologies and neurologies of our day have mostly ended in blind alleys of error. They have ignored the biology of the eye, which is the keynote of the whole matter. To go back to the accurate measure of errors of refraction, to study amblyopia, to seek for the hitherto mysterious but really evident cause of these functional disorders of eyestrain, is the beginning and end of ophthalmic and therapeutic common sense.

In all this, also, the existence of natural dextrality or sinistrality, or of the pathologic dextrality consequent upon the morbid dextrality of the trained sinistral, is fundamental and persistent. For the dextrocularity of the dextral, and the sinistrocularity of the sinistral, is a truth of vast importance in daily practical ophthalmology, in general hygiene, and in all preventive medicine. This dextrocularity may be

demonstrated by the simple experiment of holding a pencil or the finger a foot in front of the eyes, looking past it to an object across the room. Alternate closing of each eye shows that the pencil-image is ignored by the left eye when both eyes are open. It is the right eye that is chosen for accurate and expert vision. This dextrocularity demands that the space about the point of the writing pen must be easily and fully seen by the right eye. To do so all occidental writers must assume the common morbid writing posture which produces three-fourths of all the lateral spinal curvatures of the 27 percent of all our people. This means that there are ten or fifteen millions of cases of lateral spinal curvature in the United States due chiefly to dextrocularity. A smaller number of cases are due to head-tilting, caused by a peculiar axis of astigmatism, which makes accurate vision possible only by canting the head to one side; and this finally produces lateral curvature in another way. We know nothing about the results upon the morbidity and mortality statistics of this certainly existing and life-wrecking cause of disorder and disease.

Any ocular disease of the naturally dextral, any ametropia, or operation which compels the right-eyed to become left-eyed, at once introduces an element of unfitness and pathology which must be counted upon. Every oculist now knows that the left eye is more prone to diseases and incapacity than the right. It is more

often amblyopic, its ametropia being usually of a more incapacitating kind than that of the right. In every case of beginning exclusion of one eye the dextrocular factor is present and demonstrable. (That the opposite conditions exist in the 2 percent of sinistral, goes without saying.) Accurate study of the heterophoria, and past history of any case of eyestrain, makes clear the existence and activity of the cause of dextrality and dextrocularity. To train a sinistral child to become dextral is to put a curse upon it for life. The attempt generally fails, at least in part, but it does not fail to work evil. The ophthalmologist who ignores the factor in every patient he treats by that much fails in good judgment and effective therapeutics. The greater amblyopia of one eye, beginning, or in progress, or completed, indicates the process of exclusion. So necessary, however, is the preservation of dextrocularity that a greater ametropia of the right eye will be endured rather than turn the dextrocular function over to the left eye. Perception of this truth clears up many mysteries in refraction work. In a right-handed patient Nature will always help us to preserve dextrocularity more than she will to save the left eye. Recollection of this fact will aid us in most surgical, infectious, inflammatory, and refraction cases.

Everything, therefore, hangs upon the most absolutely correct diagnosis of the errors of refraction, the pre-

cise location of the axes of the smallest degrees of astigmatism, the estimate of the exact and least anisometropia, etc. This alone will prevent pathologic accommodation and the rise of amblyopia, extinguish the unnecessary struggle for dextrocularity, and stop the genesis of heterophoria. It is not necessary to say that it cuts off the source of the other local ocular diseases, and the systemic effects, which result from eyestrain. All questions of "full correction", etc., hang upon the dominating need of putting the sphincter muscle of accommodation into physiologic instead of morbid action. Every uncorrection of ametropia, every wrong correction of it, is prone, and usually certain, to turn physiologic accommodation into pathologic function, with its numerous trains of sequent deranged functions anywhere.

Amblyopia is unquestionably the primary and progressive effect of uncorrected ametropia, and heterophoria, when it exists, is a contributing and hastening consequence. The time of life in which the first or both together produces such a condition that cure is impossible, varies in each case, and the estimation of possibility or impossibility of cure constitutes the most difficult problem of the refractionist. But possibility of return to normal acuteness of vision and to normal muscle balance has existed some time in every case, and hence the need of prevention before it is too late. *Get at the baby's eyes*, is therefore the command

of an enlightened science, and of rational therapeutics. Prevention is not only better than cure, but it is the only way to cure in the vast majority of cases. The old ophthalmology allowed the dying eye to die, and then tried, often unsuccessfully, to set the dead strabismic eye straight. We now know that we may prevent the amblyopia, the dying, the heterophoria, and the strabismus, by preventing the ametropia and eye-strain which caused all four morbid results. As "Back to the Child" is the essence of all real pedagogy and sociology, so it is the beginning of true ophthalmology. When harmful ametropia exists, every year of neglect after the second or third year of childhood, is, or may be, ruinous to eye, to general health, or to a life career. Nine-tenths of the old ophthalmology busied itself with unsuccessful patching up of the effects it could and should have prevented.

To epitomize:—Prior to civilization the chief cause of the Darwinian exclusion of the unfit was such imperfect vision as endangered or disabled the organism in the struggle of life. This imperfection of vision was due to ametropia, especially to the higher degrees. With civilization the disablements of men and women were immensely multiplied, because a lower degree of ametropia unfitted for competition. In the sharpest modern competition of reading, writing, sewing, and a hundred handicrafts, the slightest degrees of ametropia may unfit. The varieties of ametropia called astigmatism

and anisometropia are immoderately increased by civilization and by near-work with the eye, due largely to the need of retinal shading by the eye-lids, and these increase the eyestrain and hasten the mechanism of exclusion of the unfit. These mechanisms are in early life primarily of two kinds, first, local ocular diseases (lid-troubles, styes, conjunctivitis, choroiditis, etc.) and, secondly, systemic diseases—anorexia, vomiting, indigestion, headache, anemia, truancy, waywardness, etc. If these symptoms are not heeded, and if near-work is demanded, the usual method taken by Nature to save the remnants of useful vision, are such intensifications and extensions of the systemic reflexes as shall throw the organism temporarily out of the struggle, rest the eyes, change the occupation, etc. That is, they are essentially obviations of the difficulties, curative by indirection, and aiming to save what is possible from threatened wreckage. If now the systemic organs bear the brunt of the morbid reflexes the eyes are usually spared and certain kinds of errors of refraction take this direction. Head-tilting and spinal curvature are preferred to ocular ruin, so valuable are the eyes. Others expend the morbid results on the eyes themselves; first, by lessening the visual acuteness of one eye, the most ametropic, generally, but always the one that can best be spared, the one which is easiest excluded, or which will the least lessen the organismal validity. Thus amblyopia is one of the

earliest notices that Nature is renouncing the effort at the highest visual power, and that the organism must drop to a far inferior grade of function and use. The exclusion and the saving are modified and often governed by dextrocularity. Heterophoria is secondary in effect and a more decided warning of coming ruin. To run to surgery in this stage is the extreme of absurdity, and is downright therapeutic blundering. Salvage is often and generally possible even so late as this by glasses alone. With strabismus, and especially if chronic, the killed eye may be operated upon for cosmetic purposes. Variations, and added factors, multiform and complicating, may be united with these or follow all of them, demanding the greatest intelligence and skill on the part of the oculist. If intelligent and skilful he will always follow, never contradict or withstand Nature, always learn from her, for in it all she is at work to save and preserve the most and best vision, her simple and primary obstacle being ametropia. Every stage of the degenerative process cries out, *Back to the Child!*

THE OCULAR FACTORS IN THE ETIOLOGY OF SPINAL CURVATURES.

CHAPTER II.

THE OCULAR FACTORS IN THE ETIOLOGY OF SPINAL CURVATURES.*

By H. Augustus Wilson, M. D., Philadelphia.
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The object of this paper is to open a discussion upon the relations that exist between certain forms of acquired spinal distortions and postures of the head.

It is apparent that when ultimate changes in the bony and ligamentous structures of the spine have occurred complete restoration to normal function cannot be obtained.

The more extensive the bony changes the less prospect is there for betterment. Remedial measures that are employed are at best palliative. The increased flexibility of the spine and improvement of the action of the intrinsic spinal muscles arrest the progress of the deformity and not infrequently secure such improved conditions that a cure is spoken of. Cure is not necessarily the establishment of normal structure and function,

* Read by invitation before the Section on Orthopedic Surgery of the New York Academy of Medicine, March 16, 1906.

Reprinted from the *New York Medical Journal* for July 28, 1906.

but is considered such when the resulting condition is free from morbid tendencies, and there is obtained the nearest possible approach to the normal.

In view of the generally unsatisfactory results of the most approved forms of treatment of scoliosis with attendant bony changes much time has been devoted to the consideration of prophylaxis, and in this field the greatest advances have been made in recent years. It is an accepted axiom that any prolonged alteration of the normal relations that exist between the axis of the pelvis and the axis of the shoulders will inevitably produce scoliosis. This might very properly include, with alterations of the axis of the shoulders, any persistent alteration of the position of the head. It is a matter of observation that torticollis will cause scoliosis without primarily altering the relative positions of the shoulders. The same obtains in the presence of unilateral deafness, adenoids, and other conditions that tend to tilt the head. Therefore, it seems proper to consider in detail every known or possible factor in the production of persistent alterations of the position of the head that would induce an ultimate scoliosis. For the purposes of this short paper and to concentrate the discussion it will confine attention to possible effects of acquired postures of the head in using the eyes, whether occurring alone or in conjunction with other recognized causes of scoliosis.

The difficulties that frequently exist in definitely

determining the relative importance of causes in producing effects is illustrated by the following cases:

Gould thus refers to a case that was sent by him to me. ("Torticollis and Spinal Curvature due to Eye Strain," *American Medicine*, March 26, 1904.)

"CASE I.—A young man (aged fourteen years) was brought to me in 1900 by his father. He had evident symptoms of eye-strain. I found the following error of refraction: R.—S. O. 25 +C. 5.25 ax. 75°; L. +S. O. 50+C. 6.00 ax. 75°. This ametropia was promptly corrected. The father incidentally remarked that the boy had spinal curvature. I had noticed that he had a malposition of the head, but I was too stupid to recognize its significance. . . . Dr. H. Augustus Wilson was consulted, verified the diagnosis of spinal curvature, and by proper treatment the spinal abnormality and malposition of the head have entirely disappeared. There is no doubt as to the truth of the theory in this case, and almost none, also, as to the fact that without the correction of the ametropia there would not have been so speedy a cure of the spinal malcurvature."

My notes of the case are:

The patient delivers newspapers, he starts out with a very heavy bundle, which he carries under his left arm so as to have the right hand free. Examination shows a functional sclerosis in one long curve extending from pelvis to head. There is no muscular rigidity; no muscular inability, but rather a muscular insufficiency as to endurance. Spine flexible in all normal motions. He can sit erect for a short time, then droops. Stoop shoulders; head generally inclines to the right. There does not appear to be any evidence of organic changes. Wears correc-

tion for ametropia given by Gould. Discharged in two months. Cured.

Without knowledge of the ocular factor one would naturally class this case as an occupation scoliosis. Carrying a heavy bundle of newspapers under his left arm, while the right hand was used to roll and throw the papers, gave rather excessive exercise to the right side, while the load upon the left side and its consequent inactivity would seem to have been an exciting cause.

The constant use of the correction glasses and the short resort to physical culture produced a rapid restoration of the normal posture.

CASE II.—A girl, fourteen years old, was sent to me by Dr. W. H. McCurdy three years after the deformity was first observed by her parents. She presented the usual type of S scoliosis with rigidity in deformed posture. The dorsal rotation was pronounced with the concavity to the left. The head was persistently carried to the right. There was no asymmetry of legs. She has been wearing spectacles that she obtained from a traveling salesman. She suffers from typical migraine. Was sent to Dr. Gould, who reported that the following formula was prescribed: R.+S. 0.87+C. 62 ax. 75°; L.+S. 0.50+C. 1.25 ax. 90°.

The question will naturally arise as to whether it was a coincidence that this patient had scoliosis and a peculiar condition of refraction. It appears that serious bony changes had occurred, and the deformity, rapidly increasing, demanded attention, but this was determined upon at so late a period as to prevent entire correction. The natural inference is that the error of refraction had existed prior to the development of the scoliosis and had at least some bearing upon the progress of the condition, from the beginning functional head-tilting to functional scoliosis, and to the ultimate bony changes, in which latter condition I first saw the patient.

In view of the favorable progress that has been frequently observed in functional scoliosis where the astigmatism was discovered promptly it would seem to be rational to infer that if the error of refraction in Case II had been properly corrected earlier in life the associated functional scoliosis would have been prevented or corrected and the ultimate bone changes would not have occurred. In this individual patient the usual gymnastic and manipulative methods secured increased flexibility of the spine and greater muscular development and control, but the head continued to tilt to the right until the error of refraction was corrected. After wearing the correction glasses for several days the head assumed a more nearly correct posture which I felt justified in ascribing to the removal of the astigmatic condition rather than to the other corrective measures that I had employed.

Since the first mentioned patient was under our conjoint care in 1904 Dr. Gould has devoted time and study to the ocular phenomena that would induce head-tilting, and has written extensively upon the subject. Just as always occurs in the advancing of new ideas and theories he has received adverse criticism as well as commendation. One criticism was that he put the cart before the horse, that the scoliosis in reality caused the head-tilting and quite possibly the peculiar axis of astigmatism. Be that as it may, the facts as determined by Gould have occurred sufficiently

often to cease being considered as mere coincidences, and must perforce assume place as among the many other real and demonstrable causes of scoliosis. The discussion from the orthopedic standpoint will aid in determining its importance.

It has been my good fortune to have been associated with Dr. G. M. Gould in the examination of the spines of seventeen of the patients in which he has observed an apparent permanency in departures from the erect posture of the head due to ocular conditions.

I have delayed presenting the subject from the orthopedic standpoint until a sufficient experience should have confirmed my earlier impressions. I now refer to the several papers that Dr. Gould has published bearing upon the subject of this paper.

1. Torticollis and Spinal Curvature Due to Eyestrain (*American Medicine*, March 26, 1904).

2. Malposition of the Head (Torticollis, Canted or Tilted Head) with Resultant Ill-health, Spinal Curvature, etc., Due to Eyestrain (*American Medicine*, May 21, 1904).

3. Dextrality and Sinistrality (*Popular Science Monthly*, August, 1904).

4. The Pathological Results of Dextrocularity and Sinistrocularity (*Ophthalmology*, October, 1904).

5. The Optic and Ocular Factors in the Etiology of the Scoliosis of School Children (*American Medicine*, April 8, 1905).

6. Visual Function the Cause of Slanted Handwriting; Its Relation to School Hygiene, School Desks, Malposture, Spinal Curvature, and Myopia (*Medical Record*, April 22, 1905).

From these six papers by Gould the following facts and explanations are deducible:

It can be demonstrated upon any normal person that a certain astigmatic (glass) lens placed so that the artifical astigmatism produced shall be at axis 75°, will obscure vision unless the head is tilted 15° to the right, in order to bring vertical objects into clearer vision. The letters of the alphabet, trees, houses, etc., are vertical and must be seen clearly to make vision and action accurate.

If a patient has axis 75° astigmatism, because of the curvature of his cornea, he will be compelled to tilt his head to the right to see clearly. There are various other axes of astigmatism that will necessitate head-tilting to the right.

The above mentioned truths depend upon two other factors: 1. Right-handedness. 2. The preservation of an equal or better acuteness of vision of the right eye.

If the patient is left-handed he is also left-eyed, and the left eye then becomes the chief factor in the production of the head-tilting. If the axis in the right eye in the dextral (right-handed and right-eyed) is from 60° to 85° or if it is from 160° to 175° the tilting must be to the right; if the axes are from 95° to 120° or from 5° to 25° the tilting must be to the left.

If in the sinistral (left-handed and left-eyed) the axes in the *dominant* or left eye, are those last given, the

results will be the same. All this holds, except in so-called symmetrical axes, regardless of what the axes of the nondominant eye may be. But if both axes are the same, the head-tilting becomes more pronounced, continuous, and absolute.

2. In the dextral, the usual writing posture, assumed, taught, or permitted, the body is curved to the left and the head or neck more curved, rotated to the right, and spirally upward (or chin upward and to the right), so that the cervical portion of the vertebral column has three abnormal positions, curves, or twists, *viz.*, a curve with convexity to the right, a rotation on itself, and a spiral twist. (In the sinistral all this is reversed, as the writing is done with the left hand.)

These vicious postures are of purely ocular origin, and are compelled in order to get the field of vision about the pen-point in clear sight: 1. Of the right eye, *i.e.*, to get the axis of vision of the right eye so placed that the writing thumb, forefinger and the pen-point do not obstruct the view. 2. To get the axis of vision of the left eye so placed that the bridge of the writer's nose does not obstruct the view of his left eye (vice versa, of course, in the sinistral writer).

With the exception of the infectious diseases (not always then!) the traumatic, and a few unimportant others, all organic disease is of functional origin. Gould's theory, therefore, is that in the abnormal postural function of 1, head-tilting, due directly to some

peculiar axis of astigmatism, and 2, a double spinal curve (lateral and forward) coupled with a three-fold cervical curve (convexity to the right, on itself, as a spiral slant) we have the sufficient and permanently acting postural or functional origins of the vast majority of subsequent organic scolioses.

Gould bases his thesis upon the absolute demonstration of the mechanics of the spinal movement and action summarized by Lovett in the statement that there is rotation of the vertebras whenever any part of the column is bent in any way not directly anterior or posterior. The error of many investigators of spinal column mechanics is that they have apparently ignored the fact that the cervical vertebras are a part of the spinal column. They have carried out their experiments in many instances on the cadaver, etc., with the head and neck cut off. With any lateral bending this vertebral rotation necessarily produces distortion or lateral curvature. Also with any lateral curvature there must be a rotation which is more or less manifested by a protrusion posteriorly of the walls of the chest of one side and of the opposite side anteriorly.

From the existence of head-tilting alone, or certainly with the diagnosis of the peculiar axis of astigmatism which must produce it, Gould has stated in advance of examination of the back that the patient had lateral curvation, inelastic curvature of the vertebral column, or some morbid distortion of the back. In about fifty

cases Gould says that he has never known his forecast to be found false when the back was exposed.

As the earliest of all signs, perhaps even before the functional curve is suspected, and certainly before it is demonstrable, Gould has found that there was associated with the head-tilting and the peculiar astigmatism a lack of symmetrical lateral bending of the lumbar and lower dorsal vertebras. That is, that the patient could bend further and more easily to one side than he could to the other, thus indicating the presence of unsuspected spinal irregularities or abnormalities.

If all of the foregoing is true, and it certainly has confirmation in the seventeen cases that I have examined, and if it is also true as stated that 27 percent of all school children in Europe and America have lateral curvature of the spine, then there is hardly any other discovery in modern medicine of greater importance than this. Through a knowledge of its practical bearing Gould has many times urged that low errors of refraction produce more harmful eyestrain than high ones and likewise he has stated that all low degrees of spinal distortions produce more suffering than high and organic ones; they are also a serious menace because they are overlooked while they are functional and often become organic before receiving proper attention.

The orthopedic surgeon rarely sees patients with scoliosis in the functional stage, but the cases are sent to him long after the organic changes have become

established and complete restoration to normal condition is impossible. He must, perforce, confine himself to attempts at producing as close an approach to normal posture and function as possible. It is now accepted as a common experience that the vast majority of the cases of scoliosis that are taken to the orthopedic surgeon are those whose deformities have been first noticed by the dressmaker or the corsetmaker because of difficulties encountered in making the two sides of the patient symmetrical. It would seem to be a rational procedure to submit every child to a critical examination as to its functions of the spine, and eyes, etc., much in the same manner that parents have the dentists frequently examine the teeth. One rarely hears of a dentist who has found some departure from the normal advising delay with the assurance that the child will outgrow the condition, and yet there are a large number of diseases and deformities that are thus left to Nature, with the disastrous results too frequently observed by those into whose hands they finally are placed too late to prevent deformity, and often too late to correct resultant conditions.

In the prophylaxis of scoliosis there is a large field that must carry the investigator into the school life of children and the almost universally faulty postures whether induced by school furniture, or by erroneous positions in writing, or by the various errors of refractions that Gould has clearly demonstrated.

The therapeutics of the functional stages of spinal curvation should be:

1. To remedy any existing head-tilting.

2. To stop the morbid writing posture by placing the paper opposite the right shoulder, when sitting squarely and uprightly before the desk, and to incline the desk leaf at an angle of at least 30°. The Japanese in their way of writing do this, and in addition they hold the writing brush so that both eyes can see the writing field about the point. It is most doubtful if they have anything like as high a proportion of scoliotics as have been observed in Europe and America.

3. The orthopedic surgeon should direct the use of such remedial measures as have been determined as best adapted to securing full normal function and reestablishing vertically. To accomplish the prevention of scoliosis the necessity for the early resort to the orthopedic surgeon should be strongly urged upon the general practitioner and parents.

Gould observes that up to the age of about twenty years it is often possible to cure functional lateral curvature by the use of proper correction glasses and the employment of suitable corrective measures applied to the spine and controlling muscles. When the patient is over twenty, he observes that doubt and difficulty will increase with each added year. Suffering and reflexes will cease whenever there have been such ligamentous and bony changes that strain on mus-

cles will cease and compensation organically be established.

In the presence of eyestrain and many other types of disease the rule of physiology is that no muscle or set of muscles can be innervated continuously for long. Whenever this too long innervation exists physiology passes into pathology, until, finally, functional passes into organic pathology.

It is not the purpose of this paper to cite selected cases to demonstrate their symptoms, signs, ocular or spinal conditions, although seventeen cases have been examined conjointly by Dr. Gould for their ocular defects and by me for their spinal conditions. Dr. Gould informs me that he has records of upwards of fifty cases including the seventeen that I have seen. I have found it to be a safe rule in all cases to have them examined as to their eyes, and have found that it resulted in a report that was in accord with statements previously made. In two cases in young children I kept a careful watch over them but did not direct gymnastic or other remedial measures for a period of three months after they began to wear their correcting glasses. In both of these cases the correction of the head-tilting by wearing the correction glasses enabled them to carry the head persistently in the erect posture, thereby removing the predisposing cause of the previously existing functional scoliosis. In older patients it was always necessary to prescribe forms of gymnastic

exercises and manipulations because of the alteration in the positions and action of the intrinsic muscles of the back and neck. In the patients who were beyond fifteen years of age distinct evidences of resulting bony changes made absolute correction impossible although the rigidity of the spine was largely removed and consequently greatly improved function was obtained.

A LIFE AND CAREER BLIGHTED BY IGNORED EYESTRAIN.

CHAPTER III.

A LIFE AND CAREER BLIGHTED BY IGNORED EYESTRAIN.*

SEVENTEEN years ago a healthy lad of 12 years of age began having frontal headaches. He was going to school at the time. Since then he has had such headaches all the time. They were not sickheadaches, and up to three years ago he has never had any other symptoms of disease, local or systemic. About ten years ago he went into newspaper editorial work, reading proofs, etc., for ten hours, mostly in the night by artificial light, and, besides this, going to school in the afternoons. He has thus put his eyes to excessive labor for the last nine or ten years. There is not one pair of eyes in a hundred able to withstand so severe use as this without producing injury somewhere and somehow. Three years ago the patient's mother noticed—and photographs taken at this time show the fact—that the left eye-lid began drooping. At this time he found, while at his work at the desk, that his eyes "began watering", and that his headaches increased. He consulted an oculist of his city, Dr. F., who ordered glasses which

* *Annals of Ophthalmology*, July, 1906.

the patient could not wear, or did not wear. There was a complete failure to inquire as to causes and conditions, and adequate cure was plainly not attempted. At this time the saving of the man's eyes and profession was plainly possible, but failure was more plainly certain. Dr. B., the "best oculist in the city", was next consulted, but only after a year or more of aggravation of the disease had passed. When shown Dr. F.'s glasses, Dr. B. said they did no harm, and did no good, ordered them left off, and that no glasses at all should be used. His attention was concentrated upon a symptom which had suddenly appeared the day before. This was paralysis of the iris, the pupil being dilated to the extreme width, of course with loss of ability to read. Despite this condition the patient was allowed to go to New York City for four days, on business. Upon his return, Dr. B. said there was "paralysis", and thought, as the man was a smoker, that it was due to tobacco, and the patient was put through the colored-wools tests. This was a false trail and similar negative results were obtained as regards alcohol, the kidney function, diphtheria, carious teeth, colds, and all the rest. All the rest, except one! No inquiry or examination was made as to refraction, or heterophoria; glasses, he said, were not needed, and it never entered his mind that such paralysis could be due reflexly to eyestrain. That would not be "scientific". Hence the iridoplegia (all that was discovered, for the loss of

accommodation was not suspected) must be causeless, and all that remained to do was an equally senseless therapeutics. The paralysis of the pupil had not been caused by a mydriatic, therefore it should be treated by a myotic! The logic is not quite clear, but no matter! The myotic instilled each morning soon reduced the pupil to normal, but by two o'clock in the afternoon it had again widened "*ad max*". "Office treatments" were instituted and "electricity" was used in the eye and the spine was "touched up" with the "Vibrator". The physician repeatedly told the patient that he could not understand what caused the paralysis. Tiny pills were also ordered, which the next oculist consulted called "booze-pills". Finally, all "science" having failed, the patient was told to go back to his work at the desk. No glasses were given for the paralyzed accommodation of the left eye, none for either eye in fact, and after four or five weeks of suffering the patient consulted oculist No. 3, Dr. M. This gentleman put the patient through the same questioning, examinations, and tests as regards tobacco, alcohol, venereal diseases, kidneys, etc., and finally concluded that the cause of the trouble was an automobile ride taken the evening before the mydriasis appeared. Strychnin and pilocarpin (which have been continued up to coming to me), were sent for, and although the physician had, as he said, no faith in it, the patient was given electricity. (Will this electricity superstition ever end!) As to eye-

strain or the need of glasses there was still absolute silence!

Up to this time all near-work had been done with the right eye, but now this eye became "bloodshot," "watery" and "prickly." A visit was made to Dr. M., who did nothing, was not, as he said, at all concerned about such things, and allowed the patient to attend "a banquet" in another city. At the banquet a small glass of wine was taken and two cigars smoked. The patient came home from the banquet with the right pupil dilated just as the left had been! The wine and cigars were charged with the crime, and having been of such great service in the left eye, pilocarpin and strychnin were again ordered for the right eye! The next day, while walking, the patient happened to close or put his hand over the left eye, when he instantly became violently dizzy, staggered, and fell over on the ground. He did not lose consciousness, but arose at once and closing the right eye continued his walking. He at once noticed that with both eyes open he saw double. Calling immediately upon the oculist, Dr. M. found the right eye very divergent, diplopia was present, objects seemed tilted, etc. Strychnin and electricity were reordered, and a steamed or ground lens was placed before the right eye to prevent double vision. In the left, +Cyl. 0.25 ax. 180 was ordered, and all in a pair of European eye-glasses, which, like an inverted letter V on the nose, falsely located the axis

at about 30° or 40°, in a charmingly scientific and optical manner. A "tonic" was ordered and the strychnin was also kept up for two weeks, but then discontinued, while the tonic was taken for six weeks. Electricity was also applied. But as all this fiddle-dedee with a disease of unknown origin was naturally without effect, and as the paralysis was most surely of central origin ("the lesion," the patient was told, "was at the base of the brain") the highly logical procedure was instituted of cocainizing the conjunctiva and mechanically pulling the globe about—up, down, in, out, around, reversed, repeated, and *noch einmal.* After two months of these "office treatments" somebody got tired, and "a rest" was ordered. But during this rest, both for patient and doctor, the patient must take an "absorbent," and "potash" ten drops three times a day increased gradually to 78, then decreased to ten, then stopped, left the question why the King of France marched up the hill and then marched down again. Dr. B. had advised the drinking of ale; Dr. M. was as strongly opposed to this, and the patient smiled—towards me, and was obedient to his last physician.

The man was now compelled by his inability to work at his desk to accept the tired-out oculist's advice to give up his desk, and with it a position of trust and power for which he had labored so hard during ten years. He had secured the post just two weeks previously.

At once upon renouncing reading and writing all subjective symptoms, the headache, the "thumping" at the back of the head, etc., lessened, then ceased, and there was a gain in flesh of 15 pounds, although the man is still thin. With the lessened eyestrain the morbid cause ceased to act on the general system and health returned.

But the damage to the eyes could not be undone, at least without any attempt to undo it. The scorn of glasses was shown in the eye-glasses that would make even an "ophthalmometrician" laugh. And the ground glass or steamed lens over the right, of course prevented any attempt Nature might make to bring this eye into function once more. To add the acme of the ludicrous, the right eye was so paralyticly divergent that by no method could it get a glimpse at this white wall but saw everything at the temporal side wholly outside the glass. Thus, not only was the diplopia not prevented, but the eye was forced to diverge more than it naturally would have done, in order to satisfy its inevitable desire to see something. To rid herself of the bungling device of man Nature had nothing else to do except to produce or encourage ptosis! And this was actually done! To avoid the false image of the right eye displaced 40° or 50° to one side of the true image, the patient closed the right eye, until now there is a paresis amounting seemingly almost to a paralytic ptosis of the lid. Most note-

worthy, however, is this fact: With the left eye closed or shut of function, and with fixation commanded by the right eye, the right upper lid at once, and by the effort of fixation, is raised as high as any normal person can raise his own right lid. With both eyes open this is absolutely impossible, and the lid cannot be raised sufficiently high to free the pupil with the head erect and the plane of vision horizontal. In the last three months, under Dr. M., there has been no improvement in ability to raise the lid. The paretic droop of the left lid noticed three years ago is not now present and that eye is normal in all respects. The right pupil, when the patient came to me, was dilated about one-half maximum mydriasis, and stabile. Before using a cycloplegic I found that the ciliary muscle was absolutely paralyzed in this eye, and that with Sph.+3.00 D. added to the existing error of refraction there was perfect and most excellent acuteness of vision at 14 inches. Under mydriasis the right pupil widened to the limit, but the cycloplegia revealed no greater hyperopia than the manifest had shown.

With paralyzed accommodation the errors of refraction were found to be:

R.+S. 0.25 + Cyl. 0.62 ax. 180°=20/20+
L.+Cyl. 0.25 ax. 180°=20/20+

The opthalmoscopic examination demonstrates that the funduses of both eyes are perfectly healthy and

normal. This with normal acuteness of vision gives the ignored proof, which Drs. B. and M. had also before them, that tobacco, alcohol, etc., had nothing to do with the disease.

Caused by the monocular vision the patient is canting his head to the left and forward, and this, if uncorrected, will in time produce lateral curvature of the spine, or symptoms which are worse. In nearly every case of severe eyestrain, the influence of dextrocularity is manifest. In this one it is exceptionally so and in a most interesting manner. In the dextromanual the left eye is the one which will naturally be more diseased or which will be first thrown out of function if the right has not an error of refraction, etc., so much greater than the left that this one *must* be chosen for exclusion. In Mr. K.'s case, although the left had only one-fifth of the total ametropia of the right, it was the first chosen for condemnation, and was condemned. The warning was unheeded by the man's physicians, the murderous near-work without correcting lenses was allowed and ordered, and the right, even with its higher astigmatism, being unable to bear the strain, Nature suddenly had to renounce, and dramatically exclude it from function; then commute the sentence of the left and bring it back as the sole agent of the visual function. Thus the right-eyed man was transformed into a left-eyed patient; and patient forever, because, in adult life, tragedy results from such an almost impossible and

never perfectly successful education of the inexpert center of vision of the left eye, which must be coordinated with the other dextral centers in the left brain.

Seventeen years ago this boy's cerebral mechanism began crying out in pain from eyestrain. And the peculiarity of the eyes was such that every oculist in the world might have known, the best did know, and all should have known, that a pair of astigmatic lenses would have ended the pain, and would have prevented the tragedy bound to come sooner or later in this boy's life. So widely and well should the crude truth have become spread that every parent should have hurried the headachey child to a competent oculist. Nobody, parent, friend, oculist, or physician, warned or hinted to the doomed lad what was in store for him. He endured his headaches for 14 years while he heroicly labored with his astigmatic eyes to gain education and an honorable place in the world. With a few hours' sleep a day the horribly abused eyes were driven to their amazing tasks. Then they themselves gave full warning, but the first oculist was not equal to his duty or opportunity and the pitiful neglect continued for another year or more. A second time the eyes warned and a second oculist was consulted who was an adherent, also, of "the old ophthalmology;" he disbelieved in eyestrain (a priest scoffing at religion, a prophet denying God), and what a farce was his etiology, his diagnosis, and his treatment! The cause was staring

him in the face, was looking into his eyes out of the eyes of the patient, begging for a couple of pieces of glass there at his hand and thousands in every optician's store. Electricity, drugs, pills, no glasses, myotics, "Vibrators," continuance of the ruinous eye-work, were the orders, resultless except for evil, which aided the patient in his *descensus averno*. Oculist No. 3 added every possible blunder and incongruity to all the previous blunders and incongruities and unwittingly did all he could to increase the eyestrain and its consequences. When absolute failure to cure was demonstrated came the last order of the helpless—"Rest! Quit your success, gained at such a cost, and renounce your work and do nothing!"

Apparently that all the horrors of malpractice should not be the lot of one patient, none of the oculists was a tenotomist, and the worst evil did not befall him. In this wilful and brutal ignoring of eyestrain, this reckless disregard by the crude minds of the socalled "leading men", of hundreds of proofs by good physicians, there has been a silly and unscientific failure to recognize the fact that the symptoms this man had are often the results of eyestrain. His paresis of the lid and his sudden paralysis of the iris and ciliary muscle of the left eye were plainly of this reflex nature in Mr. K.'s case. The evidence of dextrocularity, etc., was also manifest in the fact. I have had many such cases. The return to normal of the left was another proof,

when the right was necessarily condemned to death. Then Nature, the wise, intelligent, ingenious Mother and preserver and healer, unhelped by the oculists, was forced to the issue, and, to save something, she decreed paralysis of the ciliary, iris, internal rectus, and levator palpebræ muscles of the right eye. In the improvement of the ptosis, and under conditions, the ability to raise the lid high, and in the preservation of perfect acuteness of vision of this eye, there remained broad hints to the oculist who would correct that plus astigmatism at axis 180° which was the *fons et origo mali*. But the scorners of "eyestrain hobby-riders" do not look at Nature's difficulties or hints, but go at them with foolish electricity, and vibrators, more foolish drugs, the disgrace of mechanical rotation of the eye-ball, and the brutality of continued use of the eyes. Nature was working for the man's good as best she could, keeping the morbid reflex away from the eyes for 14 years, then giving warning after warning she could do so no longer. Then she tried one device in order to save the precious right eye. No heeding! Then to keep some vision she shut the right eye off with lamings, paresis, heterophoria, and strabismus. Still these were not incurable if there had been a little bit of help. Instead of help there were added burdens and insults. These heterophorias, strabismuses, ptoses, iridoplegias, etc., are often the warnings of a neglected eyestrain, ingenious devices to keep some

vision in the threatened wreck of it all. Most often they are the sole methods Nature has, when the oculist will not help, to retain the acuteness of vision, at least in one eye. The oculist who cares nothing for acuteness of vision, or for binocularity, says, "who would bother about a little astigmatism!"

Is there any hope of saving the right eye? Of giving the man a presentable appearance? Of making him capable of carrying on literary and bread-making work? The doctors have all his money and that one who will now keep up this patient's hope and effort, and who will himself work long and patiently to bring life and order in the wreckage, must be as careless of reward as he is of the hatred of his fellow "scientists." This patient does not give the physiologic therapeutist much encouragement. He now has his right eye, hopelessly I fear, strabismic, ptosic, and probably ruined. He has been turned into a left-eyed man. His calling and success in life have been murdered, and all because the leaders of the profession do not lead, because they ignore and scorn a fact, "a little astigmatism too small to be considered," which hundreds of men, superior to them in scientific and diagnostic acumen, know, and in thousands of cases have demonstrated, to cause intense disease, sufferings, and blighted careers. It is a professional shame and ignominy that we have not ended all this at least 30 years ago. Will it be ended in another 30 years?

In the first ten days after getting the glasses the patient, with a blinder over the left eye, has been able to walk several miles a day without difficulty or symptoms, except a little aching in the excluded eye. He has also read an hour or two at a time with the right eye alone. The right lid is now almost normally raised, the ptosis having almost entirely disappeared. The pupil is steadily lessening in size. But there is still total paralysis of the right internal rectus. There is no headache, or other subjective symptoms, and the marked return of health is evidenced by a gain of 10 or 11 pounds in body weight. For the first three days after getting glasses he could not eat his meals with the blinder over the left eye, because his hand would carry the food toward his right ear, instead of to his mouth; he also had nausea. Both of these troubles have now disappeared. In reading with the right alone he tires a little in one hour, but after a rest of a minute he can then resume reading and go on as before. Evidently the only difficulty remaining is the paralysis of the internal rectus of the right eye.

THIRTY-FIVE YEARS OF TREATMENT BY SEVENTEEN PHYSICIANS FOR STRABISMUS, TINNITUS, HEADACHE, INDIGESTION, EYESTRAIN, ETC.

CHAPTER IV.

THIRTY-FIVE YEARS OF TREATMENT BY SEVENTEEN PHYSICIANS FOR STRABISMUS, TINNITUS, HEADACHE, INDIGESTION, EYESTRAIN, ETC.*

Last year a professional gentleman, 45 years of age, brought me a letter from a wellknown general physician several hundred miles away saying that the patient was a chronic sufferer from autotoxemia, which the remedies ordered had not relieved. I was to determine if the glasses worn by the patient were correct and if the ailments depended upon the eyes.

The complaints in order of their intensity or power of producing suffering and misery were: 1. A noise or roaring just back of the right ear. 2. Indigestion. 3. Pain between the eyes, also at the top of the head and in the occiput. 4. Insomnia. 5. Exhaustion after literary work. 6. Nervous symptoms, depression, etc.

He was wearing spectacles recently prescribed by a reputable oculist with the following lenses:

R.+Sph. 2.50 D.=Prism 2° B. D.
L.+Sph. 2.50 D.=Prism 2° B. U.

*From *Maryland Medical Journal*, April, 1905.

Under a mydriatic I found his errors were:

R.+Sph. 3.00+Cyl. 0.62 ax. 90°=20/20
L.+Sph. 3.50+Cyl. 0.87 ax. 55°=20/20

with 9° of right hyperphoria and 12° of esophoria. I ordered bifocals:

R.+Sph. 2.50+Cyl. 0.62 ax. 90°=Prism 3.5° B. D.
L.+Sph. 3.00+Cyl. 0.87 ax. 55°=Prism 3.5° B. U.
+Sph. 0.75 added for reading.

I asked the patient to write out an epitome of his clinical history, and so far as possible I shall quote from his report, because I believe it is a too common professional error to put our own words and descriptions in the place of those of patients. If the lay report is not technically correct, it often far more accurately conforms to the facts. It is, I am well aware, a common belief that the patient's statements are not to be trusted, and even not to be used, but I do not doubt that they are sometimes, if not generally, as trustworthy as our own.*

"All the physicians I have consulted in my life," writes my patient, "as you will see, have been men of standing and prominence. Never in my life have I

*A patient once told me: "If that doctor had only allowed me to tell him something, I could have saved him from making that mistake, but every time I tried to explain I was shut up with a 'Never mind' or a supercilious smile." The layman wanted to tell the expert that his epileptic fits always came on after excessive use of his eyes, and he was not listened to.

visited a quack, nor have I used patent medicines in any form, shape or manner.

"My left eye, before it was operated on, was turned in toward the nose and caused me to see double all things and persons, far and near. I was taken by my parents from doctor to doctor without benefit—

Physician No. 1.—"Except to wear green goggles."

Physician No. 2.—"Or brown ones."

Physician No. 3.—"Or blue ones."

Physician No. 4.—"Sometimes with a little hole in the left glass, to have the light, as they said, to attract the eye or draw it back to its normal condition. Of course, it never got back until the operation."

Physician No. 5.—"Dr. ———, of New York, after weeks of consideration, concluded he would operate with father's consent, because the right eye for about six years had done all the work, while the left was becoming more and more weak, with the left lid drooping or almost closed. The operation was performed 29 years ago and was a success in every respect. I was ordered by the operator to wear the glasses he prescribed constantly. He said that I must wear glasses all the days of my life. Some time after this I thought this was not necessary, and of my own accord I used them only when studying. I soon found out that this would not do, and that I must wear them all the time. This doctor also impressed upon my mind the necessity of always seeing the best doctors who were noted for

their eye-work and understood it thoroughly. In 1888 I went to ——— city to live, and about this time a roaring began in the right ear. I was then doing very heavy study. This roaring was so intense that at times I thought I would lose my mind, and would often run out of doors and away from work, receiving relief by miles of walking."

Physician No. 6.—"Dr. ——— of ——— gave me a thorough overhauling and changed my glasses. He could not account for the noise, but thought it came from my stomach, and he advised care in eating. He thought that with dieting and wearing the new glasses the noise would leave me in a few months. There was no improvement, and when I returned again he took especial pains about my glasses and examinations. Still the roaring went on."

Physician No. 7.—"I heard then of another noted doctor and oculist in ———, Dr. ———, and I went to him. He gave me a great overhauling, decided that my glasses were correct, but thought I had a nervous trouble which caused the noise. Said he, *'We will try electricity,'* and for weeks he put me in the electric chair, waved a fan around my neck and over the top of my head; then, by myself, I would hold some sort of an electric device on my ear. At last he said: *'We haven't accomplished what we expected, and I have concluded that it is your stomach that ails you. You are large, healthy, and fat, and I would advise that you*

go on a diet, or, better, and what I think and am sure will cure you, is a trip to Europe on a very slow steamer and immediately back on the same vessel.' Of course, I could not go to Europe, so I kept on walking with my own feet and legs. This was my only relief."

Physician No. 8.—"The noted Dr. ——— of ——— was a friend, and to him I soon went. He said, *'It must be your eyes; go to Dr. ——— or to Dr.———.'* 'But,' I said, 'I have been to both of them, and they say my glasses are O.K. I think it is my stomach.' He replied: *'Oh, no it isn't. But if they said it is stomach, we won't try further; do as they said, and give the glasses a fair trial and occasionally use caffeine salts.* This I did and found some help. After a while back came the roaring worse than ever. Then for a while I let things go, only kept up walking and walking, miles and miles, which was my only relief, until I would get back in my study, and then the noise began."

Physician No. 9.—"I then moved to the city of ———. Dr. ——— was consulted, who said I had catarrh. He burned both my nostrils out after many weeks' visits to his office. No relief came. The noise and the aching at the back of the head were as bad as ever. Salts and walking every day were my only relief."

Physician No. 10.—"Thinking that it might still be nose trouble, I called on a noted Dr. ——— in ———, who said: *'Yes, you have a growth in your*

nose, and when it is removed your noise or roaring will cease.' He used a wire noose and drew forth a large piece of cartilage which I thought had been placed there for the protection of my throat and lungs. I haven't laid eyes on that man since, and do not wish to do so. Application in study brought on the roaring and noise, and therefore my walking was kept up, and Rochelle salts brought some measure of relief."

Physician No. 11.—"Again I heard of a noted man in ——— by the name of Dr. ———. After he had made another and another examination he concluded that there was a dead bone in my head, telling me in great astonishment of what he feared. I said, *'A dead bone back in my nose or throat!'* 'Yes,' said he. He evidently thought me an ignoramus, and I left him with contempt and disgust, and I never want to see this man again. I kept on walking 15 miles every day, and took salts every morning. As usual, there was some relief until applying myself to study or reading or writing."

Physician No. 12.—"By and by I began to imagine that there might be a dead bone in my head after all. I got a month's leave of absence and went to New York City to see the great Dr. ———. He gave me a rigid going over, and finally said: *'You are in perfect condition; nothing is the matter with your ears, nose, or throat. Now let me advise you to stay away from the specialists and give yourself no concern, for I think it is*

your eyes, from hard application and study. Give them a chance and as much rest as possible. and if your glasses are all right, and you keep yourself from doing too much, I think the noise will subside by and by.'"

"He was right, but my work compelled application of the eyes, and soon I must go at it again. I kept up the walking and salts, and had learned to like hot baths almost every day with cold sprays afterward. The noise was thus lessened to some extent, but only until I should read or write. Even the daily newspaper would bring back this bane of my life, and I wanted to fly or jump out of the window or take a good big dose of salts, which even at the time of work would relieve me."

Physician No. 13.—"I now moved to ———, and here I mostly kept silent about my ear or head noises, until I was advised by Dr. ——— to go to ——— and see the great Dr. ———, a wonderful operator, as I was told."

Physician No. 14.—"He said he could stop the noise, and I said that is what I want. *'I am sure,'* he added, *'that the operation will do you no harm, and am quite positive the roaring will stop.'* He swabbed my nose with big doses of cocaine—and the operation I shall never forget. He said he had 'carved me' right up to and underneath the base of the brain. I was sure of it, especially from the way he packed me with cotton. I was a sight. Dr. ——— of ———

removed the cotton in a few days. I parted with my $50, and Dr. ——— and I have parted company forever, and I shall never recommend anyone to visit his office.

"The roaring became awful. I then went on long tramps, hunting and boating, using salts, but now without relief. At last the roaring went on both night and day, and I made up my mind that it *must* be caused by my eyes."

Physician No. 15.—"Knowing and hearing of Dr. ——— of ———, I went to him and told him what I had been through. I said it must be my eyes that are at fault. He agreed with me, and proceeded to make the greatest effort of his life to determine the matter. His glasses seemed to help me. They were prescribed after weeks of trial. (He treated me as a friend, without expense.) He worked hard to help me for two years, and at last he said: *'I want you to go to Dr. ——— of ———. I do not know what your trouble is or can be.'*"

Physician No. 16.—"Dr. ——— gave me a most careful examination and concluded it was my stomach that was at fault, and that it was of so long standing that it had caused an autointoxication, bordering on or approaching some intestinal disease. He would try to help me, but could not promise that the roaring would cease or the fullness of the head subside or the aching stop until he had a full chance. Some simple remedies were all that I needed for the trial. For

one year I was under his care. He gave me $\frac{1}{10}$ grain of calomel to take when the headache came on (with a dose of Rochelle salts next morning), taking $\frac{1}{10}$ grain every hour from one in the afternoon till bedtime and Rochelle salts every morning. I was to stop drinking coffee. When tired of Rochelle salts I was to take Sprudel salts; when tired of Sprudel, sal hepatica, and report every two weeks. I was also to walk as usual and take hot baths, with plenty of outdoor work and less indoor work. He then spoke of my eyes, but I told him they could not be at fault, for Dr. ——— had done everything in that way to help me. I often went to see him with the same old story, and he would encourage me to keep right on with the simple remedies, which I did. I was more relieved than ever before. But the treatment became of little avail, although I walked more than any time during the 17 years of ache in the back of the head, ache in the eye-balls, ache behind the eyes. The roaring in the right ear kept me awake nights, and before falling asleep I would put my hand over my ear or my watch between my ear and pillow, as the ticking of the watch was more comforting to me than the dreadful noise in my head. All this was more intense after a few hours in my study and in writing. At last Dr. ——— said: *'I have done all that is necessary to be done for your condition, as it appears to be that of a healthy man having a healthy body. I am now convinced that your eyes are the main*

and only trouble you have, and I have thought so from the beginning. Now I want you to go and consult the oculist, Dr. ——— of ———, and if he says your glasses are right, then I am nonplussed, but perhaps will give you a trial with other treatment, although I am right, I think.' Again I referred to the oculist, Dr. ———, who had been most painstaking in his work, etc., and who was my good friend. He replied that he knew he was right and that I must go."

Physician No. 17.—"What is the result? Dr. ——— was right. I have saved shoe leather, for I don't walk so much; I have done more work; no roaring in my ear; I seldom take salts; my bowels are regular every morning of their own accord; since you put the glasses on me I have gained 10 pounds. I am feeling as fine as a fiddle or like a colt. To write out these data for you has taken me all the afternoon, from 1.30 to 6.30, without any of the noise or roaring. I have taken an occasional good smoke with my pipe while writing, or a cigar—the first time I have been able to do such a job in 17 years without wishing to jump out of the window or having to run or walk miles for relief. I am a happy man, and I thank God for your life and that it was my good fortune to fall into your hands. * * * The battle is going my way now and the enemy is being routed. * * * You have removed from my life the awful conditions which were becoming to me those of despair, for I had no ambition, head

aching every day, noise so intense, my stomach out of order, and the only relief was salts, salts, walking miles on miles, etc."

The last letter says: "My glasses have done for my health and comfort more than all the medicines, etc. I have no headache, no indigestion, no noise, I am of a more joyful disposition, I work with a better intelligence, more vim, my nervous system is much improved. I have some difficulty in adapting myself to the bifocals, etc." * * *

The moral draws itself, and the many lessons to be gleaned from this biographic clinic need hardly be epitomized. It is plain, however, that if 30 or 40 years ago, and if at any day in the meantime, the state of medical knowledge and ophthalmic skill had been what it might and what it should have been, this good man might have been relieved of his suffering, as he was, in a day by the adequate correction of his ametropia. Otologists, laryngologists, gastrologists, "ophthalmic surgeons," and general physicians may, if they will, gather some instructive suggestions from the foregoing quotations. We have here another instance of the "walking cure" which did not cure, but which was only relief of most of the patients whose cases I have in other *biographic clinics*.

I wish to note a few only of the thoughts as regards refraction that spring up, although they are of relative unimportance to the others:

1. It should be noted that at first there was the strabismus during childhood and youth as the only symptom, although others, unchronicled, might have existed. This strabismus was neglected for six years. Of course, ametropia produced it. Already the lid was ptosic; nature was covering the eye and turning it in to be rid of the bad image which optical science could have made a useful and fusing one. Ophthalmology preferred to give goggles—blue, brown or green, with a hole in the one, etc.—rather than to help nature in her fundamental difficulty. Later, of course, operation was demanded.

2. It is marvelous that nature up to, through, and after the operation preserved this man's perfect acuteness of vision. After a high hyperopic astigmatism has existed up to 13 years, and then is succeeded by a strabismus of six years, the eye is almost always ruined for visual purposes.

3. This obstinate preservation of acuteness of vision was the reason of the man's equally obstinate reflexes, and his rugged health enabled brain, ear, nose, and digestional system to withstand the awful insults of 35 years and still not degenerate into organic disease.

4. Most noteworthy is the fact that as presbyopia was approaching the symptoms and organs affected multiplied, and the intensity of the symptoms increased.

5. The glasses worn by the patient when he came to me did not correct his astigmatism. The prisms

incorporated in them under these circumstances, and the hyperopic correction also, not only could not aid the genius of the eye to overcome her difficulties, but positively increased them. Nature was struggling to get a perfect image on that retina, and as it was impossible, was turning it aside to be rid of it, as she did in the cases of De Quincey, Wagner, and thousands of others. Instead of giving the correct image, the oculist may, as here, prevent the exclusion of the eye from vision (as he also does in all tenotomies for heterophoria and strabismus), or make her work harder to turn the eye again, or force her to extinguish the image in the brain.

6. If this patient had been a woman, or even a man of less energy or rugged health, reestablishment of health after 35 years of suffering would have been only partial, or more probably impossible. Therein lies the fallacy of crying "Exaggeration," "The oculist failed," etc. Before a woman could reach 40 with such a set of reflexes she would perhaps have been over-operated upon for aural or laryngeal disease, and surely she would have had her appendix removed, together, probably, with her uterus, ovaries, etc. Even if not so, she would have drifted into chronic invalidism, sanitarium life, or would have died by those executioners of the functional diseases which we call infectious or organic.

This patient, being a man, luckily escaped the atten-

tion of the gynecologists, and also of the gastrotomists and the abdominal surgeons. It is incomprehensible that he should not have gone to the nerve specialists, and it is a genuine miracle that the tenotomists were not consulted. With infinite variations a million such case-histories are now being made in civilized countries, and the existence of rightly-founded and scientifically-conducted refraction schools is the sole method of preventing their millionfold repetition in the coming generations. So far there is not the hint of the foundation of the first. Even those who should be the most eager and early to advocate such schools are too often happy to cry "Exaggeration, "Hobby-riding," "Specialism gone mad."

A CASE OF HYPERCHLORHYDRIA, INDIGESTION, CONSTIPATION, ETC., AS TREATED BY ONE GASTROLOGIST, THREE GENERAL PHYSICIANS, ONE "MECHANO-NEURALIST," ONE HOSPITAL, ONE PROFESSOR OF MEDICINE, AND ONE REFRACTIONIST.

CHAPTER V.

A CASE OF HYPERCHLORHYDRIA, INDIGESTION, CONSTIPATION, ETC., AS TREATED BY ONE GASTROLOGIST, THREE GENERAL PHYSICIANS, ONE "MECHANO-NEURALIST," ONE HOSPITAL, ONE PROFESSOR OF MEDICINE, AND ONE REFRACTIONIST.*

THE symptoms of which Mr. H. S. complained when he consulted me had persisted, with the exception to be noted, since 1897. They were pain in the abdomen, constipation, "sour stomach," eructations, some occipital headache, and pains in the muscles of the back. "The acid would rise up to my mouth so that I felt relieved when I forced it out by vomiting." "I was depressed and despondent to such a degree that I could hardly give a civil answer to any one." "I would have sleepless nights for a week or two at a time, and felt as if I was not worth the salt I ate." His sufferings became so great in 1897 that after following, without relief, the treatment of an eminent general physician, the patient secured a three months' vacation and took a trip to Europe. During his vacation he

* From the *St. Louis Medical Review*, June 2, 1906.

was entirely well, but upon his return to his work his troubles at once began as before.

A specialist in diseases of the stomach was now consulted. The stomach pump was used for three months without relieving any of the symptoms. Hyperchlorhydria was found, and sodium bicarbonate was ordered. "In one-half an hour after the dose had been taken, the pain and other symptoms all returned." Under the gastrologist the symptoms became worse, and the "mechano-neural" expert was tried for two or three years. As described by the patient, this "treatment consisted in pressing the nerves near the spine and stomach." This manipulation gave great relief at first; there was a gain in weight, pain disappeared, and the patient thought himself cured until he went back to work again—then the old symptoms returned. During the first winter following this treatment, the man's sufferings became worse than ever, and again the "mechano-neural" specialist gave a period of relief. Again the symptoms recurred, and so the see-saw continued. Whenever the treatment was carried out, however, it should not be forgotten, there was a cessation of the eye-work caused by his occupation. It was another method of taking a vacation, and whenever there was a vacation, long or short, even for a day or two, there was a cessation of the symptoms of disordered digestion. It would be interesting to know how many times this patient figures in

the histories of mechano-neural "cures." For hundreds of years, multitudes of patients have been "cured" by almost as many different treatments, *plus the cessation of eye-work.* It is a fallacy which underlies the entire practice of medicine of today, quite as well as that of the past. There are at least signs that within the next fifty years many practitioners will become conscious of this simple and easily recognized fallacy, and that clinical medicine will thereby be revolutionized in one important respect.

Another general physician, a regular, was now put in charge, but the abdominal pain continued, and seemed to get worse. "By this time I could feel the nerves in my stomach beat like a drum, whenever I had the least worry or excitement in business. I got irritable and excited over the smallest thing."

There was now another return to mechano-neuralism, and in a few weeks there was again relief, which lasted two months. "Then I got so bad that I had to stay away from my work for days at a time."

The family physician, a successful and excellent practitioner, was next consulted. His medicine gave temporary relief; only "drugs were given acting on the liver. The liver became swollen and sore." After a vacation spent at Atlantic City, upon a recurrence of the complaint with work the patient returned to the second general physician formerly consulted. But there was no benefit derived from this source.

"I felt discouraged, and often thought of my wife and three little children with anxious forebodings."

In this despondent condition, the patient went to one of our famous hospitals "for a thorough examination." "You can think how my heart beat when I heard the results." "A very bad stomach, enlarged liver, and a touch of appendicitis." "I took the medicine ordered, and as usual got no good results from it."

The patient now consulted the professor of the practice of medicine in one of the largest of our medical colleges, who "ordered piperazin water and bicarbonate of soda." He "felt better for a while and then the trouble began again." His weight now ran down from 180 to 163 pounds.

"In the spring of last year I had to give up working, on the advice of my family physician, and I felt as if I could never work again." "I went to the shore for three months and improved very much, but in the fall when I returned to my work, I found that my old trouble was all coming back, only much worse than before. When the pains came on in my stomach I felt like fainting, and I was afraid of eating anything. I lived on bread and milk for months, but the pain came just the same."

During all these years the patient has had "chronic constipation," for which, by the advice of physicians or on his own initiative, he has "constantly" taken

vast quantities of "Hunyadi Water, cascara, patent medicines, Beecham's pills, etc."

The patient also writes:

"When the pains in my stomach have been severe, and I was about played out, so that I could not work any longer, I would stay at home for a day or two, and my trouble would all be gone in a few hours after I left my work. During my vacations I felt as well as could be, and could eat anything—until I returned to work, when after a few days, it would all come back."

As usual in such cases the patient has had frequent "colds" and "coughs."

Insomnia, also common in such cases, has increased in later years. Once last fall he hardly slept at all for two weeks, and at such times he suffers from "nervousness" and "worries about his work."

At the height of his suffering in the winter of 1905–1906, while he was eating only milk, some one told the patient that sometimes such diseases as his had been found to be due to eyestrain. This was the first time such an idea had even been suggested to him. So ridiculous did this seem to the patient that he writes, "I felt like laughing, but in my desperate condition, I was ready to grasp at any straw within reach." Less than a year prior to this time Professor Musser, of Philadelphia, had stated before the American Medical Association that it was a fact "familiar to all" that such diseases as this patient suffered from might be due to eyestrain. "Who has not seen correction of

errors of refraction," he says, "relieve socalled bilious attacks, periodical vomiting, anorexia, indigestion, and other gastric symptoms?" The gastrologist, indeed, had told me two years ago that he was always most careful to have the eyes examined in his cases when there was any possibility of eyestrain affecting the digestive system.

The patient, too, was presbyopic, being forty-four years of age when I prescribed glasses. This fact had, of course, not been noticed by any of his medical advisers. The lenses which I ordered were as follows:

R.+Cyl. 0.37 ax. 30° } Distance
L.+Sph. 0.37+cyl. 0.50 ax. 165° }
Add 0.87 sph. for reading; in bifocals.

Immediately the patient was a changed man. It was noticed that whereas before this he had long been lethargic, slow, or morbidly "nervous," cynical, harsh, etc., he now was talkative, genial, happy, and active. Several months after this he writes:

"Since I have worn the glasses I have not had the slightest trouble. If this keeps up I shall certainly remember you as my greatest benefactor, both to me and my family, to my dying day. I can eat whatever I please; I take no more cathartics, and have a natural movement every day. I am as well as any man. I have been steadily gaining in weight every day since I have had the glasses. The result ought to be written in letters a foot long: *Not a particle of trouble from the fourth day after wearing glasses.*"

NIL DESPERANDUM AS AN ARTICLE OF THE REFRACTIONIST'S MATERIA MEDICA.

CHAPTER VI.

NIL DESPERANDUM AS AN ARTICLE OF THE REFRACTIONIST'S MATERIA MEDICA.*

BETWEEN two and three years ago Professor Blank, 34 years old, of one of our large eastern universities, came to me and gave a sad history of ocular and other symptoms. His troubles began at least fourteen years ago, since which time he had worn spectacles constantly. Ten years ago he had a "nervous breakdown" when in college. His earliest symptoms were headache, "a strained feeling," etc., in the eyes. There was little or no relief, and a crisis came in January, 1901. It was the kind of "crisis" which occurs more often than we know—a sudden dilation of the pupil of the right eye, with paralysis of the accommodation. Consultations followed with a number of the most famous oculists of Germany, Von Hippel, Schmidt-Rimpler, Englehardt, Pantynsky, etc. None, of course, gave any relief, or influenced the condition, for none dreamed of the cause. One gave pilocarpin, temporarily relieving the objective symptoms. Studies and occupation were given up—no small matter with a young, ambitious, successful teacher and man of learning,

* *Albany Medical Annals*, October, 1906.

and soon "nervous prostration" ensued. He then tried a period of absolute rest, and perfect recovery seemed established. Why should ocular rest have cured the cycloplegia? Because eyestrain had caused it, would appear a sensible answer. Europe did not recognize such simple clinical facts and such simpler logic. In one week after "perfect recovery," with resumption of literary work, there was absolute "breakdown" again. The pilocarpin was again renewed with temporary ability to work some. The habit of doctoring the symptom, treating the effect and ignoring the cause—how old it is, and how stupid! Gradually pilocarpin became useless, and then renunciation of effort, and resignation, both collegiate and psychic, followed. His last glasses were ordered by Dr. W., of New York, who prescribed:

R.+S. 3.00+Cyl. 1.75 ax. 45°
L.+S. 4.00+Cyl. 2.00 ax. 135° } For distance.

R.+S. 3.75+Cyl. 1.75 ax. 45°
L.+S. 4.00+Cyl. 2.00 ax. 135° } For reading.

This physician had found, therefore, a slight paresis of accommodation in the right eye, and none in the left. But several other things were not found which were necessary to cure.

Intense photophobia now appeared, and became so severe that the patient had to sit in the darkness every evening, as no artificial light could be endured.

This symptom, with many variations, is also common in other patients. Why can the weak small flames of artificial lights not be borne when daylight and even sunlight gives no trouble? Because daylight is diffused, the sun is never looked at, the ocular stimulus is reflected. The shading mechanisms of the eye are numerous, and of great varieties, but the illumination of our houses and public buildings is atrocious. The source of light should never be seen. But Nature, and all the "theater headaches," "panorama headaches," etc., are not to be considered!

Finally my patient could not endure the daylight, could not read at all in any light and by any means. In the last year before coming to me, even the writing of a letter brought on headache, first frontal, then extending to the temples and occiput; in twenty minutes his head would feel as if it would burst ("rush of blood to the head" of antiquity, ancient and modern). In the last months before coming to me he has had attacks of dizziness, "grippe," etc. His digestion is perfect. Repeated urinalyses show renal normality. During the severe attacks of photophobia he would "shake all over." In former years he had high nervous tension, and great mental depression, but he is not just now despondent, although physically is "run down." He is now very "irritable." The New York physician (Praised be the Lord!) ordered the pilocarpin discontinued entirely.

At the first visit I found the right pupil half dilated and stable—the flag was at half-mast! The iris responded to no test. The media and fundus were normal. Under cycloplegia the errors of refraction were:

R.+S. 2.75+Cyl. 2.25 ax. 45°=20/20
L.+S. 3.75+Cyl. 2.25 ax. 135°=20/40

Significant also was the fact that although at twenty feet the muscle balance showed 3° B. O., the abduction was 10° and the adduction only 14. More significant still was this: There was subnormal accommodation amounting to about two diopters. As I should for a time order discontinuance of near-work I added in a second frame only one diopter to the mydriatic error in order to help him a little in his necessary writing of a few letters, ordering also the full mydriatic correction for constant use. Prism-gymnastic exercises were instituted to increase the adduction power. In the next five months there was considerable gain in the ability to read, which was now an hour or two a day; but he had failed to return for advice as I had urged, and I found now that the muscles had become badly unbalanced; some hyperphoria, and an abnormally high esophoria had appeared. The acuteness of vision had improved in both eyes, the left registering 20-30 and with both eyes 20-20+. I now ordered bifocals, adding two diopters to the distance correction in the reading segments. At first these produced nausea, and

he had to lie in bed for several days. This was to me a good sign instead of a bad one. I was steadily and doggedly resisting the wish and suggestion of tenotomy, and thought several times I might lose my patient by my conviction that it could do only harm. The nausea soon stopped, the reading ability grew, and by June, 1905, the man was reading three or more hours a day with no headache, etc. The hyperphoria had practically disappeared, and the esophoria was rapidly lessening. In October, 1905, his prescription for new glasses read as follows:

R.+Sph. 3.00+Cyl. 2.00 ax. 50°	Distance	Bifocals.
L.+Sph. 4.00+Cyl. 2.00 ax. 130°		
R.+Sph. 5.00 and cylinder	Near	
L.+Sph. 5.50 and cylinder		

From this time the gain has been more rapid, until now he may be called well, and able to resume his work again. He is trying to secure some college or teaching position. I append extracts from his last letters.

"I am getting on splendidly. I am using my eyes about six hours a day at close work now. When they get tired I stop. I have had no nervous setback for three months or more. You have no idea how rejoiced I am. I never really began to improve until last November. I shall be at work next fall, and I have only you to thank, and you cannot know how much I am indebted to you. I was so discouraged, and I fear you also were, it took so long for the tide to turn."

"I have practically to begin life over again, but with all the drawbacks and encumbrances of a late start. You have made it possible for me to go on with my life-work and that is everything—it cannot be measured in dollars and cents. After four years of sickness—etc."

I have for the most part omitted some of the more important parts and details of a full report because they might prove wearisome to those who give pilocarpin for eyestrain cycloplegia, or who, with a polite goodbye, hand an ophthalmometer-diagnosis and prescription, made in two minutes, for a patient without a history, without an occupation, and without a future. That is good enough for "science" and for "success," but it will not cure the patient. And it would be difficult to epitomize the struggle I had for nearly two years against temporary relapses, against despondency, against "neurasthenia," against new symptoms, against tenotomy, against photophobia, and against temporary heterophoria and even passing strabismus, and several other worries. To several prerequisites of faith and articles of faith I held fast and kept my patient from despair and from trying any "experiments."

1. The man had a history; his disease had a history. The existing disease and the hurt patient there before the physician are not the only, often not the chief, data in making a diagnosis. They are what one treats, and sometimes they may help in diagnosis. The careful eliciting of a long tedious history, necessary to the

rational practice of medicine, is ignored, even scorned, by many physicians. Only the biographic clinic can show the causes of the disease, running back through years of morbid habit.

2. Every item of the history cried out, *Eyestrain!* The nervous breakdown at college and with study, the recuperation with ocular rest, the ingravescence of symptoms, the resisting digestive system, the cerebral symptoms, all begged for—simply a pair of spectacles that would stop the cause, eyestrain.

3. "Scientific ophthalmology," especially the European brand, had resulted in the common farce-tragedy. Pilocarpin and incorrect glasses were as much or as little indicated as trephining, or as tenotomy of the Achilles tendon or of the inferior oblique of the eyes.

4. The patient was a human being, having emotions, desires to live, with ambitions, and abilities (all except ocular ones), for a career—then for two years ruined. His future happiness, usefulness, and perhaps life, depended upon his cure, and upon the methods and characteristics of the man who undertook it. There is more in medicine than treating the disease, more than treating the patient. The patient is a person, a friend and brother, with a past and a future. The classing and treating sick human beings exclusively as "clinical material" is an accursed thing and the curse of medicine.

5. Being certain that this patient's disease was due

to eyestrain, and his heterophoria due to ametropia, I resolutely persisted in refusing any treatment except by and through the eyes.

6. But there was accurate refraction-diagnosis, upon which all else depended, accurate fitting and wearing of spectacles; and his subnormal accommodation was attended to, his entire astigmatism was corrected, and the eyes generally put in such a condition that the accommodation was in physiologic play, with as little strain as possible.

7. As usual the influence of dextrocularity, etc., was clearly shown in the exclusion first, of the left, amblyopia (always to be watched as a sign, usually ignored), then in the renunciation of the right by cycloplegia.

8. The motto of a good physician is *Nil desperandum!* In the New Ophthalmology (scientific refraction-work) the cures are usually, *i.e.*, in not too chronic cases, so much the rule, so quick and brilliant, that it seems almost absurd. But when other bodily organs have been injured or diseased, when the mind has lost resisting power, when even the mere habit of disease has become too inveterate, pluck, and self-confidence, and "hanging to the patient," if based upon skill, self-scrutiny, and caution, will finally reward one for the long struggle.

RESECTION OF THE INFRAORBITAL AND SUPRAORBITAL NERVES FOR EYESTRAIN.

Main

CHAPTER VII.

RESECTION OF THE INFRAORBITAL AND SUPRA-ORBITAL NERVES FOR EYESTRAIN.*

ABOUT 30 years ago a little boy began having headaches, disordered digestion, and nausea—what for hundreds of years has been called "migraine," or in English-speaking countries, sickheadache. Of six brothers and sisters of this patient only one is free from severe "migrainous attacks," or "neuralgia," with vomiting, etc. The mother had these attacks also. The father had giddiness for years before his death, attributed to "arteriosclerosis." The boy's headaches and nausea, with other common attendant symptoms, kept up through his boyhood and youth. He never could swing in a swing or hammock, nor run round and round in children's games, and even hard play or running would bring on the frontal headache and nausea. His eyes always caused him peculiar troubles —*e.g.*, he could not look at a speaker long at a time, and he had to keep his eyes moving or closed. Reading always produced pain behind the eye-balls, ex-

* From *American Medicine*, New Series, Vol. I, No. 2, pages 71–74, May, 1906.

tending to the upper and middle branches of the fifth nerve. At the age of 16 the boy began the study of medicine, and at 18 entered one of our large medical colleges in Philadelphia. He had read so much that every one said he had hurt his eyes. The habit of "blinking" had persisted from childhood. In 1886 he consulted a wellknown oculist, but there was no lessening of his symptoms by the glasses ordered; he could now read but little, and not at all at night. He depended upon a good memory with readiness in learning, and so attended lectures and did his dissections rather than study books. He was graduated in 1888 and soon took up active practice in a distant State. Except during short periods when incapacitated by surgical operations, etc., he has continued his work as a physician in spite of the terrible suffering since endured almost every day. From 1889 to 1892 he drank a great deal of whisky, but has not done so since then. In 1895 the anterior superior spinous process of the ilium was fractured, followed by some peritonitis, and in 1898 typhoid fever ensued with another attack of peritonitis. Partly to lessen the pain of the first inflammation, and more, I suspect, to conquer persistent insomnia, opium, "about two grains a day," was ordered, or at least taken, and finally this was replaced by chloral, amounts indefinite, but large. These drug habits were continued for about two years, then were wholly renounced. The diges-

tion was disordered, there were "pasty stools," his heart was weak, and he sometimes "fell down from exhaustion," "loss of power in the legs, etc." Sexual power was lost, but "desire correspondingly increased." There were skin eruptions and "blotches." After a month in the mountains he came home "cured." About ten years ago the nausea turned into real vomiting after attacks of severe pain, neuralgia, headache, etc. In 1900 the patient began taking occasional doses of cocain, soon more frequently and in larger doses, hypodermically. This was stopped in a few months, and not since has there been any resumption of such habits. Even while most addicted to drinking and drug habits he was carrying on a busy practice, and he is sure the fact was not suspected by his patients.

During all these years his greatest sufferings have been "burning pain in the eyes, and in the upper branches of the fifth nerve, with nausea, vomiting, and insomnia." He has had no diplopia, but in recent years he has been "unable to read; the print becomes blurred, the letters have colored borders." "Riding on the train always gives me pain in the eyes and headache." Many oculists have prescribed glasses, and from one pair in 1892 he got a short term of relief. In 1904 two laryngologists operated upon the nose, "removing some bone," and after the second operation there was relief for a little while.

In 1902 a leading surgeon in one of the most famous of American medical colleges "advised clipping the upper branches of the left fifth nerve." This was done by another professor of surgery in another medical school. There was relief of pain upon this side, but none in the right eye and right side of the head, and the general symptoms persisted. This first operation was therefore followed by resection of the remaining infraorbital and supraorbital branches on both sides. The nerves were drawn out as far as could be and cut or broken off to the greatest extent possible. Complete ptosis of the right eye immediately followed, also some paralysis of the lips.

For two weeks he "did nicely," but then he began to sneeze persistently, and an inflammation of the antrum of Highmore ensued. "The pain from this is not to be described." A laryngologist was now consulted who used adrenalin locally and fitted glasses. Since then the patient has alternated between pain more intense, and suffering less intense. When the antrum could be drained there was comparative relief.

Thinking that his long and violent "neuralgia" might have been due to some dental affection, the patient has had every tooth in both jaws extracted, without the least relief.

In order to complete the history of his case, one detail may be mentioned: The patient states that he has at all times had an exceptional sexual desire, and

that this has been most irresistible when the neuralgia was worst. He has for years believed that in his case at least a sort of "erotomania" was induced by the cause of his suffering.

Since 1892, Dr. H. has "scarcely been free a day from 'neuralgia' in some part of the head, neck, or body." In the last two years the pains have been less localized, "more general." Driven almost mad by his sufferings, he has subjected himself to heroic treatments with almost all sorts of drugs, particularly phenacetin and similar preparations supposed to allay pain. He has repeatedly bled himself until he fainted from the loss of blood. He assures me that if he had not been restrained by the thought of his duty to his wife and children he would long ago have committed suicide. He would rather die now than endure another five years of agony as atrocious as the last five. He loves his professional work, but now has an assistant to accompany him in all his calls. He has conquered all the lapses into habits of drink, addiction to opium, cocain, chloral, etc.; of this there is no doubt whatever. He is now superintendent of a Sunday-school, etc., loved and trusted by his fellow citizens.

The man presents a most pathetic spectacle. Huge wounds and cicatrices are visible on both cheeks and above the eye-brows. The right eye-lid is so contracted and tightly closed down over the globe, that it is not

possible even for another to raise it except to produce a slight interpalpebral slit. By throwing the head back and with exertion he can catch a glimpse of objects with this eye. I succeeded in demonstrating that this eye had almost perfect acuteness of vision. It is an eye hopelessly buried by a surgically paralyzed lid. No one would attempt to relieve this ptosis by an operation, even if the patient would allow it. He has permitted the last operation, no matter what the future may have in store for him, and says he "would give years of his life if he had never been operated upon at all." His cheeks and lips are sunken from the loss of his teeth, and his speech is thick and indistinct. He has antral disease, also the result of the operations, and it is impossible to see what may be the outcome of this.

I cannot learn what were the orders in all of the prescriptions of the six or more oculists who have examined his eyes. He came to me wearing:

R.+Cyl. 1.00 ax. 90°
L.+Cyl. 1.25 ax. 90°

These had been worn since last September. He also had a prescription from an oculist given a few days before his visit to me, but this had not been filled. It read:

R.+Cyl. 0.50 ax. 75°
L.+Cyl. 1.00 ax. 105°

Under cycloplegia I found the following error:

R.—Sph. 0.25+Cyl. 0.37 ax. 90°
L.—Sph. 0.25+Cyl. 1.37 ax. 90°

This was ordered, full strength for distance.

I also found subnormal accommodation, and this was twice as great in the right eye as in the left. The man is 38 years old. I also ordered for reading and writing:

R.+Sph. 1.50+Cyl. 0.50 ax. 90°
L.+Sph. 1.50+Cyl. 1.37 ax. 90°

This, unfortunately, could not be incorporated with the distance correction, as bifocals, because of the fact that the head must be thrown back in order to catch the sight of distant objects with the right eye. The presbyopic segment would, therefore, interfere with distant vision, and we both wished to preserve the function of this eye for possible future contingencies. Two pairs of spectacles were therefore ordered. With my correction there was the best acuteness of vision in each eye, fusion was perfect, etc.

So far, therefore, as concerns the refraction of the three oculists whose records I have, it is painfully evident that if one is correct, the other two are hopelessly inaccurate. If one can give relief, neither of the others could do so, and probably would increase the morbid reflexes. The presence of subnormal

accommodation had not been suspected by previous refractionists.

Now what was the matter with this man? What was the primary and fundamental disease which began in childhood, never ceased, and which increased until, during the last 14 years of his life, few men have endured more excruciating suffering? I have never heard a more evidently true and startling record of continuous and heroically endured pain. There is something truly magnificent in the fact that morally and mentally this man has not only not committed suicide or gone to the bad by drink, or drugs, but has risen above it all, and has lived. And not only has his disease not killed him, but he has also lived through all that chirurgicomania could do for him. Disease, drugs, and surgery, these three; but the worst of these was surgery.

When this boy began suffering with what for thousands of years has been called "migraine," a Philadelphia oculist had learned, and a Philadelphia neurologist had emphasized the truth, that migrainous and neuralgic disorders were sometimes due to eyestrain. The boy's family physician ignored what Thomson and Mitchell published on the subject. Eight years later, in 1882, the boy was still suffering while Dr. G. C. Savage was publishing his great discovery that all sickheadache is due to eyestrain. The youth's physicians never spoke of the fact. In 1883 the young man

was still enduring frontal headache, nausea, pain in his eyes, etc., and Dr. Lauder Brunton had written and published these words:

"But frontal headache is not the only one which may arise from abnormal conditions of the eyes, for megrim or sickheadache is very frequently associated with, and probably dependent on, inequality of the eyes, either in the way of astigmatism, myopia, or hypermetropia."

Still the young man's physicians disbelieved, were ignorant, or were silent. Even in 1885, 1886, 1887, and 1888, neither the medical student, nor his physicians, nor his professors, had learned what Thomson, and Savage, and Brunton, and Hewetson, and Ranney, and Stevens, and Martin, had said was often the cause of such afflictions as the medical student endured. For 14 years more, worse and worse grew the young physician's sufferings, and while they grew worse, many other clinicians were contending that such sickheadaches and "neuralgias" were due to eyestrain. They were not listened to. Nor had the laryngologists yet heard about the authoritatively reported connection of eyestrain with migraine and neuralgia, and they "took bones out of his nose" without giving their colleague any relief. But they did no harm.

By this time writers had multiplied who emphasized the now 25-year-old theory of the origin of migraine, sickheadache, or neuralgia in ametropia, but the professors of surgery disbelieved, were ignorant of, or

were silent about the matter. So they cut in, pulled out, and twisted off, four healthy nerve trunks of the face. These nerves were the most innocent of servants, performing their normal function of transmitting impulses of warning that some physiologic function had gone wrong. The messengers, like the "Bringer of Bad News" of the picture, were struck dead, and with their undoing there was paralysis of the muscles of one eye-lid, causing one eye to be thrown out of use forever,* the production of antral disease, and possibly of worse things yet.

And still professional leaders (who do not lead), the great surgeons, neurologists, diagnosticians, gastrologists, and even the great ophthalmologists, are either silent, cynical, or ignorant as to the eyestrain origin of "migraine."

Our colleague's disease was a bad case of eyestrain. He was badly treated by ten or fifteen of his fellow-workmen. It is not a pleasant professional picture, and the painter of the picture will doubtless be roundly abused, but the picture has its place in the gallery of the exhibition.

I do not expect perfect relief will now come to Dr. H. from the proper correction of his eyestrain but with

* One of the unsuspected evil results of this ptosis of the right eye, and not one of the least, is the revolution in cerebral mechanisms, and in the habits of eye, hand, and body, by suddenly turning this adult into a left-eyed person. This affliction will never be wholly overcome.

such splendid fighting qualities, moral, mental, and physical, as has been illustrated, one does not know what may happen and the only rule is *nil desperandum.* The following are some extracts from letters I have received from him:

"Since I saw you my eyes are more quiet and restful. I read some on the train coming home, and was without headache, although I was on the train for ten hours at one time. The eyes are not so irritable. I can read longer than before. I am expecting great relief although I am afraid to say so." March, 1906.

"I feel greatly encouraged. The antrum trouble is better. I think I shall be better when the weather clears up." March, 1906.

"I have read more and with more satisfaction during the last month than I have done for years. When at home I read every evening until bed-time. Before seeing you I went to bed at dark, or as soon as I could. I have had no bad attacks of pain. Two nights ago I was up all night and busy the next day, and read until bed-time, and there was no headache—a new fact in my life. Yesterday I was thinking I should have neuralgia, and would have to go to bed before night; my eyes were irritable, and "restless" for an hour or two, but then all came right. I read an hour or more last night and still had no bad pain. I am now in the habit of reading awhile, then put the book down, glance about for awhile, and then return to reading. My wife says I do not "grunt" and complain as much, read much more; I am not so "irritable," and I sleep well. I have lost no time in my practice which has been heavy of late. I have taken no drugs—not a "pain reliever"—since I saw you. As you know, I have from youth had abnormal sexual desire; it has not been

uncontrollable, but it has been a hateful thing. I have always believed it to be reflex in character. I have taken in the past from 100 to 200 grains of bromids a day, and other drugs, but without relief. Since I saw you I have been the nearest normal I have ever been in this respect—indeed I think I am wholly normal. The irritable condition of the eyes has almost but not quite gone. I am afraid to say I am well; I do not feel entirely so, but I am more encouraged than ever. To sum up, I am in the best condition I have been in for seven years; I am nearly well, but am afraid to think so. I have a poor way, perhaps, of expressing myself, but you have helped and encouraged me. Grateful is not the word, etc." April 4, 1906.

A CASE OF "NEURASTHENIA" AS TREATED BY TWO GENERAL PHYSICIANS, ONE HOMEOPATHIST, ONE QUACK, ONE OSTEOPATH, ONE PREGNANCY, THREE OPHTHALMIC SURGEONS, TWO GYNECOLOGISTS, ONE DIAGNOSTICIAN, ONE NEUROLOGIST ONE RESIDENT SANITARIUM PHYSICIAN, AND ONE REFRACTIONIST.

CHAPTER VIII.

A CASE OF "NEURASTHENIA" AS TREATED BY TWO GENERAL PHYSICIANS, ONE HOMEOPATHIST, ONE QUACK, ONE OSTEOPATH, ONE PREGNANCY, THREE OPHTHALMIC SURGEONS, TWO GYNECOLOGISTS, ONE DIAGNOSTICIAN, ONE NEUROLOGIST, ONE RESIDENT SANITARIUM PHYSICIAN, AND ONE REFRACTIONIST.*

THE wife of a regular physician of one of the Southern States consulted me last November, complaining of symptoms and giving a history to be described in the following pages. Her cure by means of simple spectacles seemed to both patient and husband so astonishing and satisfactory that I sent the following letter to Dr. S.:

Your kindest of letters is just at hand, and I hasten to ask you to recapitulate the entire clinical history of Mrs. S. Of course, I have interest in the individual case and cure, but you know it is the prevention of such cases which makes us eager to bring this knowledge to the world. There are thousands of such patients as Mrs. S. who have been vainly seeking relief, and

*From *American Medicine*, Vol. XI, No. 8, pages 281–283, February 24, 1906.

dragging out lives of invalidism. In all Europe there is hardly any possibility of such cure to be dreamed of. Generally speaking, the profession, even here, either does not know, or in its prejudice denies, that the causes of such diseases may lie in the eyes. The greatest desire I have in life is to bring that knowledge to a practical recognition. To publish careful and accurate histories of cured cases is one of the best methods of reaching the ignorers and sneerers, Will you help me to do this in Mrs. S.'s case? No names will be published, as the object is not to bring any physician or person into notice, but only to teach the lesson. Please, therefore, state briefly the history and symptomatology, the physicians consulted, name them in order, their diagnoses and reports, medicines and advice given, etc., up to the last. I will try to do no injustice to any. I wish to state that if inquiries shall be made I will privately give your name to correspondents.

Chiefly from Dr. S.'s letters, I have put together the following notes of his wife's case. At the outset, in such instances, we have the old, old story that "the trouble began with a fall," a "box on the ear," "an attack of some illness," "going in swimming," "eating some green apples," etc. This time it was "jumping from a box," which occurred at the age of 12, and the patient's subsequent ill-health is ascribed to this cause. It was followed by backache and some other symptoms of relative unimportance. The backache continued until 1903. Menstruation, beginning at 14, was always painful. Two general physicians, a few years after menophania, diagnosed retroversion of the uterus.

During all these years the patient was energetic and active, so far as her health would permit, but "from time to time would have attacks of complete exhaustion," with other symptoms, and at about the age of 20 one attack of this complete exhaustion lasted for a year. She was treated by the second of the physicians noted above.

The patient's brother was a homeopathic physician, and at the age of 23 he sent her to a distant city to a famous, but very irregular surgeon, a wellknown quack indeed, who diagnosed retroversion, and, I gather, treated her chiefly by means of a pessary. There was "relief" so long as the pessary was worn. This instrument, however, after the patient's return to her home, "got misplaced and she became worse."

Another physician, a gynecologist, gave her several local treatments for the retroversion.

The osteopath now came for his turn, and "she received great relief."

Marriage occurred in the fall of 1902, followed by the birth of a child in August, 1903. There has been no physical retroversion since the labor.

In 1902 an ophthalmic surgeon examined her eyes and ordered glasses, and in 1904 another ophthalmic surgeon ordered other glasses.

The "attacks of exhaustion," etc., still continued, and the patient's husband took her to one of the most famous of American hospitals. The gynecologist

in charge found no retroversion. "He cureted, and treated the urethral orifice, which was somewhat irritated." In addition, he advised that she should consult an excellent oculist of the city. The resident physician of the hospital did not carry out the orders of his chief and directed her to another ophthalmic surgeon who, after long and laborious tests, ordered glasses; but they greatly increased the intensity of all her old symptoms and added new ones. She was "an ideal patient," and continued to wear the glasses faithfully until she came to my office seven months later. The "attacks of exhaustion," severe occipital headache, etc., continued during this period; at times she was "unable to do anything whatsoever and was very nervous."

A leading consultant, in still another city, was next visited; he pronounced the awful word, *neurasthenia*, and ordered her to the great neurologist in another large and distant city. This great neurologist again solemnly repeated the mystic word, *neurasthenia*, and—did nothing.

To the Sanitarium the poor lady was now consigned. In charge, however, was a physician who had little pleasure and less profit in treating one mystery by another, and he had also known of cases of "neurasthenia" that had been proved to be due to eyestrain. Despite the words, *hysteria* and *neurasthenia*, he advised the patient to try a fourth oculist.

Patients with "spells," "nervous breakdowns," "fainting fits," "petit mal," "convulsions," "odd attacks," "strange lapses," "blind spells," "sinkings," "attacks of exhaustion," or whatever one of a hundred names is used, should prove of suggestive interest to live oculists. To the dead or "conservative" variety, and to the fashionable neurologist, as well as to the specialist in epilepsy, they are not interesting, except to apply a name to them, mutter the word *atypical*, and commend them to the mercies of Fate, of the sanitarium, the private hospital, or the quacks.

The "attacks of exhaustion" in Mrs. S.'s case are, of course, atypical. Consciousness is not lost. She cannot speak during the height of seizure, there is no convulsive movement, no tremor, or trismus, no falling; it is not fainting as usually understood, although the head may fall over on the shoulder; during the attack she cannot move; the attacks are of different periods of duration and are easily produced by too great work or effort. They usually pass away with complete rest.

"Nervous breakdowns" arouse the attention of an alert oculist. One such attack lasted for a year in Mrs. S.'s case, and she has had many such of shorter duration. The last one, continuous for the seven months since wearing the glasses ordered before coming to me, has been the most unendurable. "She thought she would go crazy," my notes say: "her knees would knock together, and she would cry as if her heart would

break." Occipital headache and pain in the back of the neck were at once added to the other symptoms previously existing and were peculiarly terrifying or productive of despair. Pain in the eyes was also a prominent complaint. With a naturally cheerful and energetic disposition, she has been slowly reduced to a condition of greater and greater invalidism, hopelessness, helplessness, and inability to do any work, reading, etc. Before the last glasses she "had some ability to resist and fight," but since then she "has been in despair and her sufferings have been worse."

I cannot say what lenses were ordered by oculist number one. Those of number two were:

R.+S. 0.25—Cyl. 0.75 ax. 90°
L.+S. 0.25—Cyl. 0.75 ax. 60°

Those of number three were:

R.+Cyl. 0.50 ax. 180°
L.+Cyl. 0.50 ax. 150°

I found the static error to be:

R.—S. 0.25—Cyl. 0.62 ax. 75°=20/30+
L.—Cyl. 0.50 ax. 50°=20/30+

This is an error of refraction which in some cases might easily have produced head-tilting and lateral curvature of the spine. Neither existed.

I ordered:

R.—Sph. 0.12—Cyl. 0.62 ax. 75° } Distance and
L.—Cyl. 0.50 ax. 50° } constant use

R.+Sph. 0.50 and Cyl. } Special for reading and
L.+Sph. 0.62 and Cyl. } near-work

In four days every symptom complained of for 16 years had disappeared. The vision had become perfect, *i.e.*, 20-20+; there were no "attacks," she could walk as far as she pleased, sit through church services, etc., things before impossible.

"Hysteria" (the superstition of the ages), the responsibility of supposed uterine disease for general nervous symptoms and pains anywhere and everywhere—all this is in this case admirably illustrated. In a given case functional diseases, ill-defined and varying sufferings, exist; a cause must be found; a girl jumps from a box, is jarred, and symptoms are noticed. The connection of these symptoms with reading, writing, study, and school life is not noticed. A cause must be found, and the ancient fallacy is seized upon: A "retroverted" or "twisted" uterus is found, and lo! all is clear. That a thousand other instances of jumps, or falls, of abnormal twist or version, produce no symptoms, does not matter. Several regular physicians treat the condition, resultlessly. A quack applies a pessary and "cures" it. But it comes back again. Then Quack Number Two osteopaths it, and he gives

"relief," but the ghost returns. Pregnancy and labor end it, absolutely, but still the symptoms and the ill-health persist. At last a thorough-going and competent gynecologist is appealed to, and, in his own words, quoted from a letter to me, he says:

"Her doctors insisted that her womb was twisted, but I found a perfectly normal condition of all the pelvic organs. It was difficult to convince them, and I believe I never did convince them. You know how difficult it is to get the womb out of the head when it once gets there."

But the modern neurologists have long ago got the womb out of their heads! They may use the banal word "hysteria," but they smile scornfully at the musty fallacy that hysteria has anything to do with *ustera*. This organ and this disease are not any more in the pelvis of the woman patient, not even "in her head." It exists in the heads of some of the experts. But they give the disease another name indicative of lack of nervous or mental power. But "neurasthenia," when closely analyzed and examined, is also finally found not to be the patient's disease. It exists "in the head"—of the neurologist. Certainly so far as therapeutics is concerned.

And the leading consultant, or diagnostician, when he echoes the fateful word "neurasthenia" also concurs in ticketing with a meaningless word a mystery without cause or cure.

The patient comes to us, and pays us for cure. Let

us be serious about the matter, at least commercially honest. The patient pays us for doing, or trying to do, some good; not for impotent naming and "passing her on." Nor may we hide the glaring danger that the quacks and the irregulars are after us. In this case the work of two of these gentlemen was of no more lasting benefit that that of a dozen or more regulars, but it was only from them that there was "relief," however temporary. All our laboratories and our science, in many cases, are no more, and may be even of less, avail than the clinical acumen of ignorance and greed. We have lessons yet to learn from the properly despised eddyites, osteopaths, and self-seekers.

The biographic clinic runs back through all the long and devious train of symptoms of 16 years, and, undeceived by the multitude of disguises assumed by the Proteus of functional disease, seeks to find the central and persistent cause. Nearly a dozen physicians found it to be a twisted uterus, but their treatments did not cure. Dr. Pregnancy cured every objective proof of retroversion and still the psychic retroversion, or hysteria, persisted. Three other great authorities said *neurasthenia*, but as this, like epilepsy, is a disease which it is supposed folly to try to cure, the consignment to invalidism and sanitarium life is inevitable.

If the prescription of any one of the three oculists was correct those of the other two were incorrect and could only increase the sufferings of the patient. The

only way to make the four oculists agree in their prescriptions, of a *mathematical* matter, recollect, is to establish a school of refraction in which the art of measuring the optical errors of the eye accurately shall be taught. The sole decisive question to ask is: Does ametropia sometimes and often result in disease? It is time to make an end of pooh-pooh and denial that such a question exists. If, in this case, for instance, the retroversion or the hysteria was the cause, the gynecologists should have agreed and cured. If the oculists were to blame, let them agree in their order to the optician. If the neurologists know no cause or cure for neurasthenia, let them be silent until they can either know, or do, or both know and do.

As to the result of correct glasses, the following paragraph from recent letters of the patient's husband may be of service. It is a physician, in good standing, who thus writes:

. . . . since she has returned we have been rejoicing and thanking God for sending her to you. . . . I have spared no pains or expense to place my wife within reach of some of the best scientific men in this country, such as Drs. —— —— (mentioning many), but I was only told "neurasthenia," which meant no more to me than it did to them. I knew that she had carried a retroverted uterus for years, which of itself could produce a train of nervous symptoms, but when this was corrected by a pregnancy two years ago, and, instead of improving she gradually grew worse, I knew that there was something overlooked. Having had glasses accurately fitted in ——, this error

did not enter my mind until I heard of Dr. —— getting such relief at your hands. Then both of us "reached for a straw," like a drowning man. . . . for I realized that her life was going out gradually. . . . She has improved steadily each day since you sent her back to me, and no happier girl lives than she. . . .

She continues to improve, and we continue to rejoice.

The socalled cranks of the profession are doing more for suffering humanity than any one else.

. . . only had one spell of exhaustion since she came home; before this they occurred almost daily. She is able to walk and do more than for years. She is very energetic and it is difficult to keep her in the limits of her strength. Your advice will help her.

Since she has worn your glasses the improvement in her appearance and health is apparent to every one. (January 4, 1906.)

The last letter says:

My wife continues to improve; is able to walk more than she has done in years. (January 30, 1906.)

ONE PATIENT'S EXPERIENCE WITH TWO GENERAL PHYSICIANS, ONE NEUROLOGIST, ONE LEADING PHYSICIAN, ONE GASTROLOGIST, TWO OPHTHALMIC SURGEONS, ONE DIAGNOSTICIAN, AND ONE REFRACTIONIST.

CHAPTER IX.

ONE PATIENT'S EXPERIENCE WITH TWO GENERAL PHYSICIANS, ONE NEUROLOGIST, ONE LEADING PHYSICIAN, ONE GASTROLOGIST, TWO OPHTHALMIC SURGEONS, ONE DIAGNOSTICIAN, AND ONE REFRACTIONIST.*

ON May 2, 1905, a patient consulted me complaining that for about 18 months his health, physical and mental, had been deteriorating. His symptoms were so peculiar and varied that, as he is a clear-headed, intelligent man, I asked him to write out a description of them in detail. This, he has done, and I quote it in full:

I was something of an athlete in my college days, have not been a drinker, have not had any infectious diseases, and up to October, 1903, I enjoyed almost perfect health. I then began having "spells." A cramp or pain of great intensity would attack me, seemingly in the bowels, the precise point being just below the umbilicus. There was at first a feeling of numbness, followed by this pain or ache of consuming and terrific character. My hands and feet grew cold; I would perspire freely, and the insufferable agony quickly reduced me to a state of great weakness. The pain would increase in intensity until I lost conscious-

* From *American Medicine*, Vol. X, No. 26, pages 1068–1071, December 23, 1905.

ness, collapsed, and sank to the floor. I remained unconscious for a few minutes, perhaps five or ten. Sometimes the attacks were not so severe, I did not lose consciousness, and they were then attended by ravenous hunger. The first attack came on in October, 1903, and was set down to indigestion. Within a week another followed, and thereafter the attacks occurred sometimes as often as once a day. After the second or third attack, I carried a card in my pocket:

IF FOUND UNCONSCIOUS, TO BE SENT TO . . . . . (*Home address.*)

From a severe attack I recovered slowly, even with the aid of such stimulants as aromatic spirits of ammonia and brandy. During the remainder of the day a feeling of weakness would always be present.

Soon other symptoms began to manifest themselves —a deeply furred tongue, bad breath, presence of a great amount of gas, acid and burning eructations, discharge of bitter saliva in the morning on rising, occasional and severe attacks of diarrhea, a general feeling of depression and apprehension, the latter almost amounting to terror. I had spells of acute hearing when certain sounds seemed to penetrate and cut through the brain. I also became extremely irritable, impatient, and unreasonable. I seemingly could not bear up under a long interview, and I suffered from strange impressions. I was possessed of a continual desire to get away from whatever I was doing. I had to hold myself in restraint all the time. I continued at my business, however, but for some six months I had to take someone with me on my trips to different American cities, because of my great fear of these attacks. At length I became very accurate and methodical in my habits, pursuing narrowly a prescribed course of action, and when compelled to change these confined ways, I became excited and worried. I had the most vivid feeling of impending danger, and almost a terror of coming things.

When I felt at my best the numbness in the abdomen was often accompanied by a feeling as if a hard lump existed there.

For the past year I have endured this trouble almost daily. No medicine gave permanent relief; no treatment seemed to avail. Vacations and a sea voyage served to brace me up a little, but the trouble in no sense diminished.

Physicians consulted were of different opinions as to the cause of the trouble, but all agreed that I was suffering from no organic difficulty. Most of them thought it a nervous affection that should be treated by prolonged rest, and powerful tonics. In the meantime one phase of the trouble increased—that of terror or fear of impending trouble. I was ever expecting a "spell." As a result, I quickly found myself unable to endure crowded cars. I could not bring myself to take a meal at a restaurant or in a hotel; or if I attempted the feat I was too often obliged to leave the table and seek safety in flight to the street. I could not travel or endure people.

To sum my condition up briefly, I lived in terror and distress the livelong day, and the only relief I derived was in sleep. As soon as my head touched the pillow at night, peace came to me. Through all my trouble I slept restfully and with absolute freedom from attack or symptom. This fact, seemingly out of keeping with the life I led when awake, finally attracted attention to my eyes as the seat of the difficulty.

You will understand, of course, that in the careful and rigid physical examinations that I have undergone, my eyes came in for attention. I was subjected to simple tests, and readily met all the requirements demanded. I could see perfectly, much better than the average man of my age, I suffered no eye ache; headache was unknown to me.

When it was represented to me after a careful examination by a competent oculist that my trouble might be due to eyestrain, and that my vision was defective, it seemed to me like a cry from

a far country—a condition too remote to permit of reasonable belief, considering what I was suffering.

I came to you in May of this year and had my first fitting of glasses. I confess to you that I was of little faith, and that at any time during the first month it would not have required much persuasion to have caused me to abandon the glasses.

I stuck, however, and about the first of July began to notice indications of improvement—indications which I was reluctant to admit, for by this time I had become well nigh a confirmed invalid, almost a hypochondriac. I was forced by the facts of my case into the belief that I was better, and with the improvement I began to spread out from the narrow circle in which my complaint had caused me to live. As a result, confidence, in a measure, came back to me, and I began to live once more. Since the middle of the summer (1905) I have steadily improved.

To most of the physicians consulted by this patient during the 19 months before coming to me, I have written a courteous note requesting clinical data, the diagnoses made, the treatment ordered, etc. But one or two answers have been received. Principally from the patient and his family I have gathered the following seemingly trustworthy facts:

1. The first general practitioner consulted pronounced the disease to be "indigestion." The patient was given asafetida pills, much to his disgust; they had no effect on the symptoms. The patient speaks of this physician as "a life-and-death doctor," explaining thereby that he has no interest in functional diseases, but is an excellent and capable physician in severe

diseases where life is at stake. It is evident that the diagnosis made in this instance was hysteria—the limbo to which patients are sometimes sent when it is impossible to make a general diagnosis or influence the disease by treatment. With the prescription of asafetida this family physician lost all interest in the case, and turned it over to

2. General physician No. 2. This practitioner "pumped out the stomach" daily for some six weeks, gave electric treatments as often, and ordered many drugs to be taken. The disease continued unaffected during the time.

3. The gastrologist, in a distant city, was next consulted. The usual tests, stomach washings, test-meals, analyses of the stomach contents, etc., were carried out, the resultant diagnosis being "hyperchlorhydria." The patient was ordered stomach washings, exercise, freedom from excitement and business, and ocean trips. He accordingly went on a voyage, without any decided change in the symptoms. He had one of the worst of his attacks after the rest of a month, and while returning home on the steamer.

4. The ophthalmic surgeon was now appealed to, who pronounced "nothing wrong with his eyes." No mydriatic was used in order to reach this diagnosis.

5. The neurologist was now consulted; his own report to me says:

Careful inquiry elicited the fact that this patient had been

examined by Dr. —— (a wellknown ophthalmologist), who had reported that "nothing was wrong with his eyes." I only found intestinal indigestion, with the development of a dominant idea.

There is no statement in this report as to the treatment ordered.

6. "The leading physician" in another city was visited. He, as of old, in such circumstances, pronounced the awful word *neurasthenia*, said the patient was "bordering upon nervous breakdown," advised him to go home, go to bed, to feed up, and to rest.

7. The diagnostician in still another city was reached in last resort. His report is as follows:

Careful examination of the urine and other excretions led me to conclude that he was not suffering from any intoxication from the usual source of autointoxication. The gastric analysis, after an Ewald test-breakfast, showed an acidity of 60, depending upon combined chlorids 12, acid salts 8, HCI 40, or 14.60 percent. On another occasion the total acidity was only 50, and free HCl 30, or 10 percent. Under the circumstances I could not admit that he was suffering from hyperchlorhydria. His digestion was excellent in every way. He complained of a sensation of burning in the stomach, and other symptoms of sympathetic nerve distress which might be said to be due to gastric hyperesthesia. A careful examination of the nervous system led me to exclude structural lesion of the brain and cord. His symptoms were too transitory and excited by events, which led me to exclude toxemia as the cause of his trouble. His symptoms were such as I have found to arise from brain irritation excited by eyestrain. He had symptoms which made me suspect his eyes, and I felt that I could exclude other sources of irritation of the cranial

nerves. His case closely resembled a number of others which I have seen depending upon eyestrain. I felt that other causes could be excluded.

8. Ophthalmologist No. 2 now ordered the following spectacles:

R.+S. 1.00+Cyl. 0.25 ax. 50°
L.+S. 4.25+Cyl. 0.75 ax. 180°

There seemed to be some improvement in the general symptoms after wearing these lenses for a couple of months, but he then "went backward again." The patient says he saw better without the glasses than with them, but he has continued to wear them up to the time of consulting me.

9. The refractionist was now commanded to cure this patient. Considerable chaffing and sarcastic "insinuendos" had been thought admissible by physicians, as regards the diagnosis of eyestrain, and those who entertained such crazy notions. Under a cycloplegiac the refractive error was found to be:

R.+Sph. 1.12+Cyl. 0.50 ax. 90°=20/20
L.+Sph. 3.25+Cyl. 0.50 ax. 70°=20/50

The image of the left eye was held for only an instant, an indication, in addition to the amblyopia, that the eye was fast going out of use. Upon the return of the accommodation I found that this function was excessive, and although he was at this time only 36,

I was compelled, in order to enable him to see without strain both at near and at distance, to order bifocal lenses, as follows:

R.+Cyl. 0.37 ax. 90° } Distance
L.+Sph. 2.00+Cyl. 0.37 ax. 70° }
R.+Sph. 1.25 and Cyl. } Reading
L.+Sph. 3.25 and Cyl. }

Two weeks later there was no lessening of the symptoms, but there had been a decrease of the accommodation, so that I was able to order, again in bifocals, as follows:

R.+S. 0.75+Cyl. 0.37 ax. 90° } Distance
L.+S. 2.75+Cyl. 0.50 ax. 70° }
R.+S. 1.37 and Cyl. } Reading
L.+S. 3.37 and Cyl. }

Two months after first seeing him I found that the aura (numbness) was not then followed by the pain in the abdomen, there was no "sinking spells," or lapses of consciousness, and the man was in every way better. From that time improvement has continued until now he is a well man, normal in every way. The visual acuity of the left eye slowly improved, being at the visit of November 17, 1905, 20-20. In a letter he writes:

At the present time (November, 1905) I am so much improved as to put my health completely out of my mind, and attend to my affairs. The "spells" are gone, together with most of the

other symptoms, and I am compelled to the belief that the glasses did it.

About December 1, 1905, the patient wrote me he was having trouble with his eyes. There was a feeling of "fuzziness" or "fogginess," which seemed to be partly mental and partly ocular; there was some lack of decision, and "almost vertigo." Complaint was also made of a sensation of "bulging" of the right eye, and there was some actual swelling of the lids of the left. The eyes "burned" some, especially in reading. There were no gastric or intestinal symptoms, and the appetite and digestion were perfect. He continued at his now most strenuously active business life with unabated vigor, at one time spending as many as eight consecutive nights in sleeping cars, working all day, etc. As the symptoms did not improve, I urged him to make the journey to see me. He arrived December 14, and I at once found the visual acuity of the left eye, with correction, had relapsed to almost 20-50. Tests showed a great change had taken place in the axis of astigmatism of this eye. With

Left: + Sph. 3.00 + Cyl. 1.00 ax. 180°

there was 20-20 + vision. The symptoms at once subsided with the new correction. The ametropia of the right eye had not changed. I feel sure there would have been complete relapse had the refraction change in the left eye not been followed by changed lenses.

Luckily for this patient he did not consult a specialist in epilepsy. And what would have been the result had he consulted a surgeon with strong preconceptions as to the value of exploratory incisions in "vague gastric symptoms which do not respond to rational

internal treatment!" * Five of the nine physicians whom he did consult ordered no drugs, but from the four others, 70 or more preparations, or the boxes and bottles which had contained them, were found when the bureau drawer was cleared out. At one time the patient was taking two doses an hour of five different prescriptions. The patient had never consulted a quack, but chose regular physicians of the highest reputation. He has not a word of censure for any of those who have treated him. Praiseworthy in a layman, exceptionally so in a patient with such a history, it must be called a sin of amiability, when viewed professionally. This case suggests several conclusions:

1. Present-day gastrology, viewed as a specialty, seems in the majority of cases to be worse than a blunder. Except one or two, not a book or an article published on diseases of the stomach, of digestion, and nutrition, even alludes to the most common and clinically evident, most easily demonstrable cause of the majority of such diseases. A noteworthy exception to this rule is the statement by Professor J. H. Musser, of Philadelphia; in the *Journal of the American Medical Association* of November 4, 1905, under the heading, "Nongastric Diseases Presenting Gastric Symptoms," are these words:

THE EYES.—The subject is familiar to all, Who has not seen errors of refraction relieve socalled "bilious attacks," periodic

* *Medical News*, May 16, 1903.

vomiting, anorexia, indigestion, and other gastric symptoms? The cure of grave organic ocular defects relieves similar gastric conditions.

I prophesy that these sentences, for a number of peculiar reasons, will become famous in medical literature. With individual variations, but with essential identity, I could cite at least a thousand cases in my own practice similar in some ways to this case, in which these digestional and nutritional diseases have been proved to be directly dependent upon eyestrain, and curable by its correction.

2. When the general practitioner treats these obscure diseases of the stomach and intestines he too frequently does so in the same way as the gastrologist, too often showing the same ignorance of their etiology, the same inability to cure, the same useless dependence upon drugs, etc.

3. Generally speaking, the neurologist is like-minded as regards the cause of many nervous and psychic symptoms dependent upon eyestrain. In this instance he relied upon the testimony of one, "the leading ophthalmic surgeon of the city," and he learned a lasting lesson. He writes: "Dr. ——— reported that *nothing is wrong with this patient's eyes.* I am very glad you have succeeded in finding and correcting a form of eyestrain which Dr. ——— *won't* believe in. It is not the first time that his examination and opinion has caused me to slip up on a diagnosis."

I do not know of more than one or two other neurologists who would have anything but the most supercilious contempt for the idea that symptoms such as those of this patient might be due to eyestrain.

4. This patient's life, his success in life at least, his happiness and that of his family, depended upon the alert-mindedness, the conscientious clinical discrimination of one diagnostician. This careful observer risked a vast deal in coming to the conclusion finally reached, and in forcing through the clinical and therapeutic test, in the face of ridicule, notwithstanding the complete failure of one oculist of the best repute, and despite the seeming failure of another for two or three months.

5. Professionally, we have a financial obligation to our patients. As a rule, we think it is only they who have this obligation, and toward us. Here was a patient who for 18 months gave his money freely to those men we call professional leaders. It was finally proved that they not only did not give him value received, but that because of ignorance or prejudice, or both combined, they wasted his money as well as his time and health. For 30 years these men have had before their eyes the evidence, sufficient to bring testing and conviction in other arts and sciences, that symptoms such as these described may be due to eyestrain. At the end of the 30 years they are only a little nearer the practical application of the truth than they were

before its discoverers began to be ignored and pooh-poohed.

6. And if this is so of gastrologists, neurologists, general physicians, and consultants, how much more emphatically it is true as regards ophthalmologists. The first one consulted by this patient did not use a mydriatic, does not correct astigmatism, and disbelieves that any systemic disease whatever is due to eyestrain. He naturally reported that "nothing was wrong with this patient's eyes." This, remember, was in 1905, not 1850, and occurred in the United States, and not in the land of von Graefe. And yet this patient had a high degree of amblyopia in one eye, had unsymmetric astigmatism, and an eye-wrecking, health-ruining anisometropia! What can be said in excuse of such "ophthalmology?" Thus, of three reputable oculists, one finds "nothing wrong with the eyes;" another prescribes:

R. + Sph. 1.00 + Cyl. 0.25 ax. 50°
L. + Sph. 4.25 + Cyl. 0.75 ax. 180°

and a third orders bifocal lenses utterly different from this correction. Is this science? Is it art? If one correction can cure, the other cannot. Such differences of measurement, relatively, would subject three mechanics, three engineers, or even three tailors, to ridicule and discharge for bungling and incapacity. Why are they permitted in medicine, and dealing, not with

a car axle, or a series of land levels, or a suit of clothes, but with the health and life of human beings? Such a condition will, of course, not end until the profession (or the public) demand it, and not then until there is at least one scientific school of refraction in the world.

Errors in Diagnosis and Treatment.—It is evident that the family or general physician first consulted accepted the traditional role "passing the patient on" with the convenient diagnosis of "hysteria." His asafetida pills and loss of interest in the case are proofs that this view and method of treatment are still routine with many practitioners. It is a round-about way of saying "I haven't the faintest idea of what is the matter with you; such cases are never cured by any treatment; and so I will take this immoral and cowardly way of ridding myself, and my conscience, of you and your insoluble and intolerable case. I have heard rumors that cranks of many kinds, oculists, hypnotists, eddyites, and the rest, have cured such patients, but I don't believe in such nonsense. So, good morning!"

The second general practitioner proceeds on the assumed diagnosis of some inscrutable disease of the organs of digestion. That is, he accepts the traditional view that almost all diseases, except infectious ones, are of gastric origin, especially those that show any gastric symptoms. As almost all diseases do show gastric malfunction, the error has greater vogue than

it should have acquired in a sane medical world. But this general practitioner accepted the gastrologist's standpoint without this specialist's knowledge and tests. Hence, with no indication from physiologic chemistry as to what to do, and without any hint of the real or clinical nature of the disease, all that was left to do was to try, at random, drugs upon drugs, and again drugs.

The neurologist adds to the diagnosis of unknown intestinal disease, another unknown and inexplainable psychic one, relies on an unreliable "ophthalmic surgeon," and "passes the patient on" with the habitual naming of a mystery, and with practical "therapeutic nihilism."

The first "ophthalmologist," the worst sinner of all, leads patients and doctors astray with a nondiagnosis ludicrous in the unscience and nonsense of its method of determination—an inaccuracy which would be criminal in electric or mechanical engineering.

The gastrologist makes a false diagnosis of hyperchlorhydria, and, *more suo*, never asks what caused this symptom, orders the old hypnotics "rest and travel," and himself goes to dinner—with his conscience.

The leading practitioner "says ditto to the honorable gentleman." He also has heard of the banal idea that such diseases may be due to eyestrain, but it is, of course, beneath his dignity to think of such foolishness. He must hunt LL.D. degrees, consultation cases,

presidencies of societies, professorships, and newspaper fame. To help solve the mysteries of actual disease, either from sympathy with the patient, or to further medical science, is not his function.

At last one diagnostician was found whose mind was open to unfashionable truth, whose clinical observation was acute and discriminating, who did not ignore medical reports which do not tally with prejudice—and who was brave enough to order the right thing, even if "foolish" and "unpopular." He was not deceived by the words, "neurasthenia," or "hyperchlorhydria," or "hysteria;" nor by the fact that this patient's case was "peculiar and atypical," for every case of migraine and neurasthenia is peculiar and atypical. He knew that the "conservative" ophthalmic surgeon may know nothing about and care less for accurate refraction. He stuck to his diagnosis, despite apparent failure. He saw to it that his diagnosis was proved or disproved by the accurate clinical test.

In the meantime, what about 100,000 physicians not thus minded? And what about the millions of "migrainous" patients, with the same essential disease as that of the patient, who are dragging their lives out in wretchedness, and hastening to needless and obviable death? From 30 percent to 50 percent of all school children, it has been demonstrated, have severe eyestrain, which is producing malnutrition, nervous

disease, or "migraine" (the disease the nature of which an eminent "authority" erroneously says is "unknown"), and which is waiting for those who escape the school when they come to the office, the study, the workroom, or the factory life and house life of later years. The case of the patient described, as do a multitude of others, illustrates the chief present-day criminal blunder of medicine, and one of the saddest tragedies of civilization itself.

A CASE OF STERCORACEOUS VOMITING DUE TO EYESTRAIN.

CHAPTER X.

A CASE OF STERCORACEOUS VOMITING DUE TO EYESTRAIN.*

VIOLENT and long-continued attacks of stercoraceous vomiting in a fine and otherwise healthy boy of eleven years may lead the puzzled practitioner to despair, and to surgery which is the despair of medicine. An illustrative case of mine has a number of lessons:

About two years ago a handsome, healthy, physically perfect lad, then aged nine years, began having daily attacks of dizziness, either in, or returning from school. He would come home and lie down saying, "I am going down in the elevator, Mama,"—alluding to the sinking feeling or giddiness he had once experienced in riding down an elevator. Soon these attacks continued for the rest of the day, and then kept up for whole days. Milder attacks or crises continued more or less frequent, but more severe crises began in the fall of 1905, and to the nausea without vomiting was now added terrible pain behind the eye-balls, headaches, and intense and terrifying vomiting, finally degenerating into stercoraceous vomiting. This continuous

*From the *St. Paul Medical Journal*, June, 1906.

intense and fecal vomiting or retching was in the last attacks kept up for 36 hours. Between these severe seizures there were periods of partial or complete relief from the headache, etc. At any time when the boy gets excited his face becomes pale, the lips blue, and his heart beats with great rapidity. He has generally a poor appetite for breakfast, has "heartburn," is a restless sleeper, and his eyes get "bloodshot," especially if he lies down in the evening. Careful inquiry elicited the fact that during the two summers of 1904 and 1905, and while not studying, the boy had none of the symptoms whatever. Dr. W. C. Cahall, of Germantown, referred the patient to me, suspecting, with a wise sagacity, that the eyes might be the cause of the symptoms.

Under cycloplegia I found the following errors of refraction:

R. + Sph. 0.50 + Cyl. 0.25 ax. 75° = 20/20 slowly
L. + Sph. 0.62 + Cyl. 0.25 ax. 75° = 20/20 slowly
with 2° of exophoria.

With such axes of astigmatism there must be in a boy of this age an habitually tilted head and a lateral curvature of the spine either in a functional stage or proceeding to organic limitations of motion and elasticity. Upon exposing the back a functional curve, dorsal right, lumbar left, was found, as yet in its early stages, with limitation of elasticity of the lumbar verte-

bras in bending to the left. I asked the mother to take the boy to Dr. H. Augustus Wilson, the orthopedic surgeon, to verify the diagnosis, and to institute orthopedic treatment if any in his judgment should be required. This was not done and the immediate subsequent history has made the mother feel that this was unnecessary.

I ordered the following lenses in spectacles:

R. + Cyl. 0.25 ax. 75°
L. + Sph. 0.12 + Cyl. 0.25 ax. 75°

From the day the boy began using these lenses, with one slight exception,* he has not had any of the former distressing symptoms. He is changed as if by magic into a healthy and hearty boy, is increasing in weight, can now play ball, etc. The spinal curves are disappearing, and soon the back, I am sure, will be normal organically and functionally.

This case is reported because of certain suggestions aroused by the details:

1. When a new truth begins to break upon unobserving and prejudice-governed minds, they at once repeat the old saying that "One swallow does not make a summer." The ornithology of the saying is almost as bad as its supposed medical significance. Because it is precisely the single case accurately and thoroughly

* The boy had once some of the early and slight symptoms of an oncoming seizure but these passed away after he lay down a few minutes.

scanned and well reported that may indeed be the forerunner of troops of migrant birds which make a long summer's work. In clinical study it is one plus one, again, and ever again repeated, that leads to the recognition of new pathogeneses and new therapeutics. Nothing has been more effective in hiding from attention and in hindering medical progress than the habit of smudging large numbers of clinical cases, probably poorly observed, into vague and useless generalizations, masses of foggy indefinitenesses that leave facts untouched and unexpressed. Disease is always individual, and the ignoring of these individual peculiarities by such words as "diathesis," "migraine," "neurasthenia," "epilepsy," and the like shows the groping of the unscientific mind among facts that have not been closely observed or clearly delimited. The fault of inaccurate vision and description seeks to hide itself, as well as the facts, with a magic carpet of meaningless nomenclature, useless theory, and mystifying generalization.

For this reason the detailed reports of individual cases should always form a goodly part of medical literature. Those textbooks which deal only with the largest groupings of clinical facts by means of the most indistinctive and glittering generalizations, are of the least use to the earnest practitioner.

2. The only possible way such patients as this one can come to the oculist is through the reference of the

general physician. How many general physicians would have suspected the possible ocular origin of the boy's affliction? Not one in all Europe, certainly, and probably few in the United States. Luckily at least one family physician was sufficiently alert-minded to do so. The common theory of the pathogenesis of persistent or pernicious vomiting of children needs revolutionizing.

3. The oculists of Europe, with two possible exceptions in England, would laugh outright at the "humbuggery" of such a tiny optical error being the cause of any disease whatever. Many of the famous or leading ophthalmologists in our own country would probably have said (as I daily hear reported) in such a case, "the child has no need of glasses," or "he has a slight astigmatism, but it is too little to bother with or to need correction." What would have been the subsequent history of this boy had he been advised by these men?

4. Only by means of cycloplegia could the exact nature of this error have been revealed. It was also discovered by means of the most delicate attention to the position of the head, and location of axes of astigmatism, etc.

5. It is the slighter grades of astigmatism, when unsymmetric (or coupled with anisometropia, also of low degree), which induces the most mischief. "Too slight astigmatism to need correction," is a proof of

bungling, of prejudice, of unscience, of a cruel heartlessness towards patients.

6. The peculiarity of these axes tilts the head, and produces secondary spinal curvature and constrained (permanently innervated) muscles and ligaments of the back. Failure to examine and treat these incipient abnormalities, and learn their causes on the part of the regular profession, is directly breeding a host of quacks and their not altogether foolish adherents, and especially gives reason for the existence and blind success of osteopathy, mechano-neuralism, and such sorry weeds manured by our neglect.

7. The phenomena of "migraine," the "swoonings," "blind spells," "vomitings," "lapses," "sinkings," "fainting fits," "vertigos," "everything stopping," etc., usually present in patients with severe eyestrain, ally themselves in essential nature with those of the thousand types of epilepsy, big or little. If to this is added the functional strain of slightly curved spines or abnormal backs, we may have a potent cause of those severer and indirect effects of eyestrain we call "real" or "genuine" epilepsy. Every epileptic should have his eyes and spine examined by experts in ophthalmology and orthopedics:—but not by those famed as expert, at least not until they have shown absence of "conservatism," and bigotry in science, and have exhibited some sympathy for their patients.

A PROFESSIONAL AND SUCCESSFUL LIFE WRECKED BY ILL-FITTING EYE-GLASSES.

CHAPTER XI.

A PROFESSIONAL AND SUCCESSFUL LIFE WRECKED BY ILL-FITTING EYE-GLASSES.*

DURING the last 15 years I have given almost as much attention to the many details of securing correctly-fitting spectacles or eye-glasses for my patients, as I have given to the correctness of the prescriptions. I am confident that by this solicitude and watchfulness I have saved a large proportion of my patients from bad health and hurt eyes. There is almost no end of the varying details required by instructions, reiteration, and warning, to keep patients from the carelessness, neglect, and wrong notions as to the adjustment of correctly-made lenses, which may affect the general health, lessen the power of work, general and ocular, or ruin the eyes themselves. In this observance I have been aided by the best and most conscientious expertness on the part of several local opticians. Without such good local opticians the oculist's work may be rendered almost valueless, or worse than useless, in many if not the majority of cases. Even

* From *American Medicine*, N. S., Vol. I, No. 8, pp. 476–478, November, 1906.

in the United States, and even in cities with supposably expert opticians, if one will observe 100 glass-wearers as they pass in the street, he must shudder to think of the injury being done by ludicrously ill-fitting glasses. This, of course, apart from the fact that the oculist's prescriptions were correct or not correct, in a scientific sense. To suppose them correct medically is however a vast assumption. Many socalled ophthalmologic surgeons, or experts, men of great fame and reputation, scorn cyclopegia (as one persistently calls it), and say they cure by taking glasses off; they laugh at "a little astigmatism," "too little to correct;" they worship the inaccurate ophthalmometer; they make merry over the absurd idea of any systemic diseases due to eyestrain; and they roar at the eyestrain hobby-rider. The chances are, therefore, high that to the insult of bad work by the optician, is added the injury of the bad work of the oculist. When the optician classes both functions as his very own, then one plus one equals four, in the manifolding of morbid results. To illustrate, I describe briefly a case in which a man's calling and success in life were ruined, simply and solely by a pair of badly fitting eye-glasses, the lenses themselves correctly ordered by one whom I hold to be a capable and conscientious refractionist.

About ten years ago Mr. A. H., a young lawyer, consulted me, his only complaint being frontal headache. He was a healthy man in every other way, of an ex-

cellent family, just starting in professional life. Under cycloplegia I found the following error of refraction:

R.+S. 6.50+Cyl. 1.37 ax. 100°=20/30+
L.+S. 6.50+Cyl. 1.00 ax. 90°=20/ 50+

I ordered spectacles to be made by a good optical firm which does not "examine eyes free," and which follows the oculist's orders absolutely. One diopter spherical was deducted for constant use. He was duly and repeatedly warned as to the harm already done even the better eye, and that the worse eye would hardly recover its lost acuteness, at least without great watchfulness and frequent advice. The future danger was thoroughly impressed upon his mind, and he was ordered to return often for awhile, and never less often than every two years. He was also requested to return to the optician every month to be sure that his frames should always be correctly adjusted.

He had immediate relief from headache, and had such increased power of study, reading, and writing, that he forgot or neglected all my warnings, and did not return to my office for nine and one-half years. He had grown deeply interested in his professional work, and had for a number of years taken up legal editorial and literary labor, working nearly all day at close-range, and frequently evenings also. He had not a symptom to complain of except that his eyes tired considerably under the long-continued near-use. According to

the old law high defects ruin the eyes themselves and there are no reflexes to the general eyestrain. Again the accommodation having been paralyzed, I retested the refraction and found that it had changed only very slightly during these years of abuse—a rare finding, but one that may sometimes occur. I was shocked to find that the visual acuteness in the right had decreased considerably, while the left had gone out of use, 10-200 being the measure of the remnants of retinal sensibility. I found a chronic hopeless central choroiditis of the right eye in progress, and in the left a diffused choroidoretinitis, equally beyond all therapeutic influences. His health had been and then was perfect. The most persistent search revealed no cause of the tragedy outside of the eye itself. In all these years he had not had a symptom, general, cerebral, or ocular, which had caused any attention. When I asked him for his glasses and he put them on it was all plain! They were eye-glasses, and nearly the most outrageously ill-fitting things I had ever seen. Soon after he had consulted me nine or ten years ago, he had disregarded all I said, and had gone to a second optician, who, without a prescription, had neutralized his old lenses, and made him a pair of eye-glasses. These he had worn until now his eyes were beyond help. They must have produced many degrees of heterophoria of several kinds, and they surely misplaced his axes of astigmatism by 15° or 20°. I told

him that his eyes and professional life were ruined, that he would have to quit his profession for one requiring no reading or writing, and that I would not take him back as a patient unless he would solemnly promise to obey every instruction I should give him in the future.

This history teaches:

1. That "the old ophthalmology" would have accepted the destroyed maculas and ruined visual acuteness as a fact standing alone, without cause, a case of choroidoretinitis *per se*, needing no explanation, and to be filed away in the box, the coffin, of dead diseases about which no more pother! The old ophthalmology would not dream of finding out the functional disease which produced the organic disease. That eyestrain could have anything to do with the matter—Pshaw! Hath not Dr. Knapp and Dr. Howe and Dr. Roosa and Dr. Dana and Dr. Fisher and Dr. Sachs publicly, and a hundred others privately, laughed such nonsense out of the minds of all sensible men?

2. This patient was wearing correctly ground lenses prescribed by a good oculist. What more could an "exaggerator," a "hobby-rider," and an "eyestrain faddist" ask? This only; his eye-glasses should be so placed that their axes of astigmatism should not be wrong by 15° or 20°.

3. That the optical firm which, even at his request, gave this patient eye-glasses without a prescription and

without notifying the oculist, should be compelled to give 50 percent or more of its net profits to the patient during his life. That the case of the optician generally must be taken in hand not only by the oculists, but by the profession as a whole; for it is only by so doing that medical men can be incited to do the accurate prescribing required to cure the hundred kinds of life-wrecking ocular neuroses which today, uncured, are turning the lives of millions into needless tragedies; and only by checking the mad ambitions of opticians to become physicians without the degree of M.D. can we secure the correct and conscientious optician work required to relieve our patients.

A CASE OF HYSTERIA DUE TO EYESTRAIN

CHAPTER XII.

A CASE OF HYSTERIA DUE TO EYESTRAIN.*

In July, 1905, Miss A. B., of New York, consulted me giving the following history: At the age of seven she began having chorea, affecting chiefly the left hand and left foot; it became so bad that she was taken from school. Upon ceasing to study the chorea disappeared at once. At the age of twelve "neuralgia pains" began in the left ear and extended to many parts of the body. Again in the spring she was taken from school, but the general pain, or neuralgia, continued, until fall when she was greatly reduced in flesh—"almost to a skeleton," was the report. She "often cried for hours with the pain." Several physicians were consulted in other cities than where she lived, who treated her, each in a different way—by "electricity," drugs, diet, etc. She slowly bettered but not, seemingly, because of any treatment, and without the cause of the disease having been discovered. In the spring of her fourteenth year she had "rheumatism," *i.e.*, a pain and stiffness of the right hip, so great that she could not walk. For two months she lay abed con-

* *Brooklyn Medical Journal*, October 1, 1906.

stantly. This coxalgia "seemed to get well of itself." School attendance was again, of course, discontinued. The next spring chorea of the left arm and left foot returned so that "she could not use them," and again she left school. For a year there was again improvement, but in the winter of her sixteenth year she broke her left arm by a fall; the arm was in a cast for eight weeks. While the arm was in the cast, in the kitchen one day, she dropped to the floor and became unconscious. She was carried to the lounge in another room, and it was about an hour before she recovered consciousness. She did not hurt herself in falling, her tongue was not sore afterward, and the next day she was as normal as usual. During the fall of this year she returned from school, lay down, and became unconscious, "or nearly so," but "every muscle of her body was jerking;" this lasted for about an hour. After these attacks she was "very nervous and irritable." There was now an attack of "peritonitis," lasting for six weeks; during this time a trained nurse was constantly in attendance. Some time after this she was greatly frightened by supposing some one was looking into her window, and again there was an attack of swooning. The tonsils were removed during this year. The girl was now sent to a sanitarium where she stayed for a month, returning in better health. During the next year there were no swoonings, but she was ill for three weeks with pain in her right side, called "ovarian"

by the attending physician. The menses were "suppressed" for three succeeding months. There were now more normal conditions for a year or more, but in her eighteenth year, about Christmas time, pain in the back and occiput began and grew so severe that study was interfered with. These pains continued for several months, beginning about the time of the approach of menstruation, and lasting for five days afterwards. She appeared to be "crazy" sometimes, and hypodermics of morphin were frequently given by her physicians. For six months before consulting me the girl has eaten no breakfasts, and little at other meals. She drinks no tea or coffee.

Upon coming to me the girl was found to be healthy-looking, weighing 148 pounds, but complaining that she had been having frequent "dizzy spells," lasting for a minute or more; she was easily tired; her pupils were abnormally large, but there was nothing otherwise abnormal about the eyes, except that the retinal arteries and capillaries were small and pale. All of her physicians, it was said, had pronounced her "a typical hysteric," and the mother and the girl constantly used this word to designate her disease. Urinanalyses were negative.

Seven years ago she consulted a prominent oculist in a city of New York State, who ordered glasses; these she wore for three years, gradually leaving them off. Two years ago this oculist was again consulted.

He ordered no glasses, but advised that she be sent to a sanitarium. The physicians in this sanitarium were awake to the possibility of eyestrain being the cause of such symptoms and sent her to me. I at once noticed that the girl habitually held her head tilted to the right; her elocution teacher had many times tried to get her to hold it erect. This was explained by the axis of astigmatism in the right eye. The static refraction errors were as follows:

R.—Cyl. 0.50 ax. 167° = 20/50+
L.—Cyl. 0.37 ax. 180° = 20/50+
with orthophoria.

This correction in spectacles was ordered for constant use, and +Sph. 0.87 added to the cylinders to be worn for all near-work, because of subnormal accommodation. I do not think the amblyopia was due to the hysteria, but that it was the cause of the eyestrain, at least one of the chief causes.

Such an astigmatism, of course, if continuous during childhood, must produce lateral spinal curvature. There was found a slight dorsoright-lumboleft curve, still mostly functional. Bending the body to the right showed rigidity of the lumbar portion of the column, tended to raise the left leg, and to bring on strain or pain in the hip-joint. Bending to the left produced none of these symptoms. Pressure on one vertebra in the middorsal region demonstrated great

tenderness. There is slight kyphosis; the cervical spines are prominent. As proper orthopedic treatment was impossible to secure, the father not being well-to-do (especially after twelve years of expensive treatment, etc., of his daughter), I instructed the girl how to carry on light gymnastic exercises, and to do a good deal of sweeping, all in such a way as to increase elasticity of the vertebras by bending to the right, etc. Consultation with a good orthopedic surgeon, advised by me, brought the report that there is "nothing wrong with the spine," that "the tenderness is due to hysteria," etc.

A year after this visit the report was that there have been no attacks of unconsciousness; there have been no headaches up to the last two months, and the few during this time have been much less severe. She has been a well woman, in fact, and has been graduated from her school, etc. Upon diligent inquiry I find that during the last two months the girl has not been wearing the stronger lenses for reading, study, etc., as ordered. Precisely in this time have the few slight headaches occurred. The refraction had changed but slightly during the year.

It seems to me evident that: No disease, not even neurasthenia, not even epilepsy, not even hysteria, is causeless; that the search for the cause should be kept up rather than to say, "We treat it, but we do not cure it;" that the sneer and the pessimism slipped into

the word *hysteria* betray the "science" and the character of the sneerer rather than explain or cure the disease; that this special case of "typical hysteria," as probably are many others, was caused by eyestrain; that it was certainly cured by careful refraction and correct spectacles; that the family tragedy of twelve years might have been avoided if—!

A CASE IN WHICH "SINKING SPELLS"—"THOUSANDS OF THEM"—SICKHEADACHE, VOMITING, ETC., WERE DUE TO EYESTRAIN.

CHAPTER XIII.

A CASE IN WHICH "SINKING SPELLS"—"THOUSANDS OF THEM"—SICKHEADACHE, VOMITING, ETC., WERE DUE TO EYESTRAIN.*

BETWEEN 30 and 35 years ago a little child, now a woman of 40, began having three symptoms of mysterious origin and nature, and they have continued, at least one of them, almost every day since then and up to two years ago; these were sickheadache, vomiting, and "swooning fits," or "fainting spells." I class the vomiting as a separate symptom, and not as a part of the symptom-complex of sickheadache because it occurred independently of sickheadache ("migraine") and much more frequently. Each type of symptom, indeed, has seemed to preserve a pretty clear independence of each other, and one, the vomiting, has been longer lived than the others.

The sickheadache was not so frequent or so serious a trouble in childhood as the other two symptoms, and at first, as nearly as Mrs. M. can remember, it was more fused with the vomiting attacks. Gradually but early it became more independent of the sickness,

* *St. Louis Medical Review*, 1906.

and finally there was no vomiting with the crisis of the sickheadache, only an intense nausea. When the patient consulted me first in August, 1904, she was sure she had had as many as ten attacks of sickheadache in the previous three months, three in the last two weeks, and one of these, the severest she had ever had, lasting a week. In trying to get a date for the beginning of these sickheadaches, Mrs. M. could only say that she had "always had them," and "could not remember when they did not exist."

The vomiting also began as early as she could remember. These attacks have occurred ever since, up to the time of consulting me, *every day, and three times a day*, almost without exception. From a half-hour after eating to an hour thereafter, otherwise well, she felt nausea, and with little effort or interruption of work, she would be compelled to vomit the greater part of the meal. As a child, she remembers, that she would often have to stop once or several times, while returning from school, and vomit, or lie down awhile by the side of the road, because of the feeling of nausea and weakness. Sometimes she had to leave school at noon instead of staying until after noon. Preceding the nausea and vomiting she has long noticed "a feeling in her stomach like the bubbling of water when boiling." Riding in the street-cars, or on the railway, especially at night, always brings on a severe attack. She has never been able to sit in a swing or

hammock a minute; looking at revolving wheels or machinery in motion also produces the attacks.

The sinking spells have been the most troublesome and grievous of her symptoms. They, too, began so early in childhood that she cannot think of any time when she did not have them. She "has had thousands of them," sometimes "as often as ten in one day." How long they lasted in childhood she cannot say, because she concealed the knowledge of them in a strange way by running out into the garden or to some room, etc., where she could be alone. She knew by the aura when they were coming on. This aura began in the toes, with a sensation she cannot even now describe, except as a "creepy feeling" which slowly crawled up the legs, then up the trunk. Whenever it reached the height of the stomach or heart the swoon began. Sometimes by running out in the wind, breathing hard, efforts of will to dominate it, etc., she has been able to postpone the fainting, but not to prevent it altogether. The attacks or lapses sometimes lasted only five or ten minutes, sometimes they continued "for hours." During the "spells" she does not wish to be touched if she is conscious, and wishes intensely to be alone and to have nothing done to or for her. Sometimes she is wholly unconscious, sometimes, however, she hears and knows all that is going on, but is always entirely powerless to speak or move. After the attacks she is very weak

and exhausted; this condition of exhaustion has been known to continue for three, four, or five days. There is no writhing or spasm, no biting of the tongue whatever; simply limp motionlessness. She knows so well when the faintings will come on that she sinks, but never falls down, and so is not hurt. Several times her people have thought her dead, friends were sent for, and she has heard these say, standing about her, "well, she has gone now, anyway." Nothing serves "to bring her to", whisky, etc., and other attempts by physicians, being of no use. All friends have noticed "a peculiar look of the eyes" after the attacks, which has become indicative to them of her condition. The attacks are not noticeably connected as cause with particular or severe use of the eyes.

This patient married about 16 years ago, and has had three children; two died in childhood. She has had other symptoms besides the three described of which I give epitomes:

Uterine disease of a peculiar nature is recorded as beginning about 12 years ago, after the birth of her first child, still living. She has had "a great deal of doctoring for this trouble." All gave a different diagnosis; "one said misplacement, another said ulcers, another prolapse, etc.," she suffered greatly for years, but lately it has been better and now gives her but little concern. "Treatment seemed of no use."

"*Neuralgia,*" *or* "*rheumatism*" of the back, shoul-

ders, and "especially across the small of the back, began four or five years ago and has continued more or less ever since!" "Sometimes the aching has been so painful that she could hardly turn over in bed."

"*Chronic appendicitis,*" so diagnosed by her physician, began about ten years ago, and attacks of pain, and tenderness, and "puffing up" of the region of the appendix, have occurred several times since.

It is strange that this woman has endured such a combination of severe and persistently recurring diseases all her life, and has preserved her sanity and basis of health. Despite all she has been a good wife and mother, heroicly struggling against her afflictions almost every day of her life. What a marvel of physiologic and psychic resisting power! What a splendid product of biology! What a will that would not be conquered or beaten down! Both she and her fine husband have kept up the fight, hoping always that somehow and some time relief would come. There is not in the woman's make-up the possible suspicion of hysteria or other morbid mindedness.

I found the woman's static error of refraction was:

R. + Sph. 1.25 + Cyl. 0.50 ax. 90° = 20/40+
L. + Sph. 1.37 + Cyl. 0.37 ax. 90° = 20/40+
without considerable heterophoria.

The accommodation, in such a set of conditions, was of course high, and for constant-use spectacles I ordered the foregoing correction less 0.62 Sph.

Over two years have passed, and the refraction remains the same. There has not been an attack of sickheadache since the glasses were obtained. There were four or five very slight and brief swoonings shortly afterward, but none since. The vomiting of food after meals sometimes takes place, but this is growing less frequent, less severe, and is accompanied with less nausea. Uterine, appendiceal, and neuralgic troubles "do not bother her any more." Her appetite which had always been very poor has been good since she got glasses.

The error of refraction in this patient, it will be noticed, is perfectly adapted to produce the results noted in a healthy-minded person with well-balanced body. It was just possible for such an organism to overcome the defect temporarily, impossible to do so for long, and it was almost impossible, owing to the equality of the defect, the symmetric axes of astigmatism, etc., to throw one eye out of function by heterophoria. All that nature could do was to resist, give way, deflect the morbid injury in any or all directions possible, and finally to create a high and equal amblyopia in both eyes. Most noteworthy is the fact that this amblyopia has disappeared, and there is perfect acuity now of both eyes.

This patient is now a healthy and happy woman, working hard as a housewife, every day. She brings her little daughter to me upon the appearance of sys-

temic troubles due to eyestrain. Her child will have no such a life-history as the mother has had, and such as, each one different, but all similar as to cause, millions of others are now entering upon. All may be prevented if oculists and the general profession wish and will the prevention. Henceforth the physician, who neither wishes nor wills, who does not give such sufferers the requisite advice and opportunity, is guilty of malpractice.

THE MYSTERIES AND SOURCES OF SUICIDE.

CHAPTER XIV.

THE MYSTERIES AND SOURCES OF SUICIDE.*

If, without prepossession or prejudice, one carefully digests the dozen or more of the best statistical and philosophical books and monographs upon suicide, he will find that the inexplicability and mysteries of the phenomena have not been solved by his study. Indeed, every writer who has tried to solve seems only to have increased the perplexity of the problem. I think this is largely due to several overlooked and hitherto unmentioned factors.

The fundamental facts of suicide statistics are but statements of mysteries and inexplicable conditions. The principal of these inexplainable truths are:

1. The large number of suicides; why should life-endowed beings consciously contradict and deny the axiom of their existence, by preferring nonexistence to continued living?

2. Civilization increases the suicide rate more rapidly than the growth of population.

3. The urban suicide rate is higher than that of the country.

* An epitome of this article was published in the *Medical Record* of September 8, 1906.

4. The influence of occupation upon the rate is most incongruous.

5. The rate in contiguous countries, departments, or "races," presents inexplainable variations.

6. With one exception the rate in males is several times higher than in females.

7. The rate is greater among the single than among the married, and is still higher among the divorced and widowed.

8. The age or time of life at which suicide is committed presents inexplainable peculiarities.

9. The rate rises in proportion to school pressure, education, etc.

1. *Suicide is a Necessary and Inobviable Phase of Biologic Evolution.*—Moralists and preachers have been shocked at the mere fact of suicide, have vainly tried to explain it, and have even still more ineffectually tried to withstand the tendency by argument and appeal. Animal suicide is not altogether unknown, but it so seldom occurs that it may be practically neglected. Is it not evident that the Darwinian struggle for existence among animals, the Nature-red-with-tooth-and-claw fact, is simply a better method of preventing suicide? If the incarnated forms of life had not killed and devoured themselves, had not lived off each other, it is plain that thousands of experiments in functions and organisms would have necessitated the slow suicide of gradual extinction without the progressive

evolution of forms and variations fit to meet the ever changing conditions. As a million seeds in every type and individual are lost that one may become a factor in genetic development, so a lesser number having come to being must, from many causes and imperfections, feel themselves unequal to the task, and so find an inevitable ending. The problem of the soil and the seed is not solved by the simple fact of the seed having found a suitable soil, and having germinated. The soil difficulty continues through life; and even the seed may have been a bad one, and fail in the best of soil. The animals kill each other, allow each other to die, or in many methods compel the failures to commit slow suicide. This is carried into savage human life, where a hundred customs, infanticide, self-sacrifices, barbaric warfare, the unresisted fatalism of disease, etc., show its almost unrelieved dominance. In civilization it is more masked, perhaps, but as actively present. Commercial warfare, the rage for social success, the fanaticism of selfishness and luxury, etc., are only slightly more roundabout methods of slowly killing off the failures, or of compelling them to kill themselves, either by tardy indirection or by sudden suicide. One should always remember that many agencies are at work in civilization to produce slow homicide and slow suicide; the suddenness of the murderer's or of the suicide's deed makes it no more genuine murder or no more

genuine suicide than the masked and long-drawn-out processes. Civilization adds and also subtracts certain factors, but neither one, nor all combined, much change the unvarying fundamental truth, namely, that while evolution is in rapid process the ill-adapted must either be killed, put to slow death of commercialism and greed, or taking the matter in their own hands, they must put a sudden end to their own failure as life-propagating agencies. It is all simply a phase, long or short, of biologic evolution, in which hard conditions are met by Biologos with partial and always modified success and ill-success. The instability of sociologic conditions and masses is self-evident. Suicide is, therefore, largely a necessary accompaniment of that biologic moment in which humanity finds itself, and all attempts to end it, or even to vastly modify it by any hitherto suggested methods will prove unavailing. Love, hunger, poverty, hatred, pride, monotony, cataclysm, and all the rest are necessary to the life-process as we now know it, and they will relentlessly bring about self-murder. In many ways we may modify, in one or two especially may we in time extinguish one great source of suicide, but while the conditions of social life and character remain essentially as now, the suicide-rate will not be reduced by more than say 50 percent. In the United States there are about 10,000 cases a year, and in the countries listed later, the total number is over 56,000. It

is no argument to say that the most evident biologic failures are not they which suicide; of course not from another's standpoint. The suicidal act must necessarily be determined from the subjective standpoint of the individual actor. That he decides upon self-murder is proof *per se* that he is a failure. The mental mechanism which begot the act, even if erroneously acting and most illogical, is itself the "failure."

2. *Civilization Increases Suicide.*—From Quetelet to the latest student of the subject, all have been astonished to find that suicide is a product of advancing civilization; as a rule, the rate of increase of suicide is greater than that of population. In France, for instance, the growth of population since 1830 has been 100 percent, but the number of suicides has increased by 245 percent. In Belgium the suicide rate has, in the same time, quintupled. In Prussia, while the population increased 0.98 percent, suicides increased 1.07; of Italy the population rate was 0.7, the suicide 1.28; of France 0.07, and 2.06; of Sweden 0.81, and 1.5. In the United States the total number of suicides were as follows:

1899, 5,340	1903, 8,597
1900, 6,775	1904, 9,240
1901, 7,245	1905, 9,982
1902, 8,291	

When we ask why civilization should increase suicide at such a rate, no logical, no really coherent answer

is to be heard or found. The suicidal rate is really more uniform than other demographic phenomena, such, for instance, as the general mortality rate. If we examine the cause of their acts tabulated or given by those murdering themselves, we find that the majority either simply refer the inquirer elsewhere, or they are those that naturally and logically are lessened by civilization. One of the largest single causes usually offered is mental disorders, insanity, etc. But these psychic diseases are themselves increasing as are suicides, and any attempt to prove that mental disease produces suicide either logically or really does not work out satisfactorily to careful investigators. Esquirol makes suicide a sort of episode of insanity, but Durkheim finds no connection of the two. The chronic or the confirmed insane, the inmates of asylums for the insane, do not extensively commit suicide, and if those in the acute or functional stages may possibly be more prone to kill themselves, the question remains, what causes the insanity? Skelton compares both rates as follows:

All ages,	0–15	15–20	20–25	25–35	35–45	45–55	55–65	65–75
Insanity, 100	6	51	109	159	201	199	192	181
Suicide, 100	4	39	68	99	163	251	338	334*

He concludes, with seeming correctness, that the more insane the less suicide. The conclusion seems to be

* This number is probably incorrect.

that both phenomena spring from a common cause. The fallacy of the customary verdict of the coroner, "temporary insanity," needs no setting forth.

As to physical disease, which occupies a prominent place in the tables, there is much to be said. As regards those physical diseases which are mortal, which swell the deathrate as usually conceived, the astonishing decline in the deathrate in recent years, due to increased comfort, better food, housing, general hygiene, bacteriology, and progress in medical science, is known of all. There are but few diseases, and these of relative unimportance, the mortality of which do not show recent enormous reductions. There is, however, one class of diseases which medical science does not understand and which is not affected by it, and which is increasing in startling ratios, and which constitutes an important exception to the rule. This I will set forth later.

One is unable to imagine how civilization can possibly increase the suicides ascribed to remorse, shame, weariness of life, discontent, afflictions, domestic troubles, poverty, passions, misery, etc., because the harder conditions of life of previous times, which would naturally beget these mental and bodily states, are ameliorated with every step of civilized progress. None can doubt that civilization and even city life have vastly increased the stability and multiplied the comforts of all, even the most unfortunate and improvident; and yet suicide increases more rapidly. Why?

And it is not the poorest and most unfortunate that practise suicide. The only way in which by these such suicidal results could follow civilization's advance would be through envy. But the spectacle of the rich, the supposed happiness and contentment of opulence and luxury, has certainly been as appallingly before the eyes of the unfortunate in the past as now. The long list of successful business and professional men, men occupying positions of trust, power and wealth (given by the *Chicago Tribune*), who committed suicide in 1905 stops all theorizing as to the influence of poverty and disappointment in causing self-murder.

There remains the ominous and disconcerting class labeled "unknown," one that outnumbers most of the others set down by theorizer or statistician. Many indeed of the other classes should be lumped in with this, and, if in a cynical mood, one might say that most of them might as well be thrown into this fateful category.

3. *The Suicide Rate of the City is much Higher than that of the Country.*—The rate in Berlin has risen as high as 260, in London to 230, in Paris to 400, and in Dresden to 500, while for each country in which these cities are located the rate is relatively much lower. In Massachusetts the rate is 84, while in Boston it is 120; in New York State, 95, and in Manhattan it is 150. But why it is so has been made clear by no writer. There is a vague repetition of the vague non-

sense, "It is the pace that kills," coupled with a sneer at "the strenuous life." But the strenuous and active may kill others, they do not kill themselves—unless the death is so slowly brought about that the census takers would not dream of calling it suicide. It may be reasonably doubted if the average degree of activity, care, worry, etc., is not as great in the small city, the town, and in country life, as in the huge modern city. There is a deal of nonsense believed and repeated as to the influence of poverty, slum life, and even of the vicious and criminal classes, in producing the suicidal impulse. The term of life may be shortened, homicides may multiply, disease, some diseases at least, may kill, but only unauthorized sentimentalism and empty theorizing contend that suicide is largely due to these sociologic conditions. There is more vice, perhaps, in the large cities than in rural districts, but do the vicious commit suicide? On the contrary it is the virtuous, rather, who furnish the suicides. Are remorse and shame more prevalent in the city than elsewhere? Probably the opposite of this. Is passion? Surely not! Does the modern city produce *tædium vitæ* more than the monotonous country? Is there more anger and quarreling in the city? But the angered and quarrelsome more certainly kill others than themselves. It is plain that this riddle has not been solved.

Mayo Smith thinks the explanation of the high rate of cities consists in the immigration of the vicious and

dissipated, and by the greater excitement and worry of city life. Skelton says suicide is generally least in countries with the greatest emigration. In reply one may categorically deny that the immigrant is more vicious and dissipated than the city bred, and also that the emigrants are more prone to suicide than the stay-at-homes. There are no facts that prove or tend to prove these theories.

4. *Occupation does not per se explain the variants of the suicide rate*, but instead vastly increases one's perplexity at the illogicality. Take the lowest rate listed in the occupation tables—that of the miner, 74 per million. Why should two or three masons, or two or three carpenters commit suicide, to one miner who works under disheartening conditions under ground? Why should four watchmakers, five milkmen, and six physicians do so to one miner? Why do 408 lawyers kill themselves in the same period of time that 139 clergymen do? A hundred such questions might be asked. Upon the common assumption and from the usual standpoint this aspect of the subject is an amazing medley of chaotic or illogic lawlessness and inconsequentiality.

5. *The Variations of the Suicide Rate in Contiguous Countries and "Races" are Inexplainable.*—A mere glance at the following table* reveals the utter incon-

* Compiled from data kindly supplied in great part, by the Bureau of Statistics, Department of Commerce and Labor, Washington, D. C.

sequentiality of the figures. The suicides per million of inhabitants are:

Country.	Date.	Total per Annum.	Per Million.
Ireland,	1887–1891	112	24
Russia,			27 approximately
Scotland,	1887–1891	224	56
Italy,	1902	2010	61
Holland,	1904	371	67
Norway,	1903	154	67
United States,	1900	5498	72
England,	1903	3511	105
Belgium,	1903	818	117
Bavaria,	1887–1891		118
Sweden,	1902	804	155
Austria,	1901	4291	164
Japan,	1902	9194	189
Prussia,	1904	7290	200
Germany,	1904	12468	210
France,	1902	8716	223
Switzerland,	1903	779	229
Denmark,	1887–1891		253
Saxony,	1862–1886		322
Saxony,	1898		469

That the word, "race," has no significance whatever in this connection is shown by the foregoing numbers, and this is emphasized by the fact the rate within one country may vary almost as much as the national rates. In Italy, for instance, different departments have rates as wide apart as 4, 15, 30, 60, or 90 per million. In England the rate in some counties is as low as 36,

in others 60, or 80, and in the highest 150. Such statements leave the mind in a state of hopeless confusion. The word, "race" has some significance when used of Japan, and although this is supposed to be a race especially prone to suicide, the rate in five occidental countries much outruns the rate in Japan.

6. *The Suicide Rate in Males is usually from Three to Four Times Higher than in Females.*—One at least finds a partial explanation of this in the enormously high (and readily explainable) rate of suicide among soldiers; in the fact that the responsibility of the man for success and failure is higher; that he must bear the greater brunt of the struggle and battle of life; that his labor is more continuous, monotonous, and severe, etc. The woman, too, is generally accredited with a larger sense of the conserving and preserving instincts of humanity. But, on the other hand, all these handicaps of the male are largely offset by the neglect, nonmarriage, abuse, desertion, etc., of a vast number of women, and the harder task they have to make a living. So that not a small degree of mystery still remains unrevealed in this aspect of the suicide mortality.

7. *The influence of marriage* pertains especially to men. In Italy if the number of married suicides is represented by 100, the number among single men would be 153, while among single women it would be 118; among widowers it would be 275, and among widows, 153. The highest rate is among divorced.

8. *The Ages at which Suicide is Committed Suggest Strange Questions.*—For instance the averages of suicides in Belgium from 1886 to 1890 at different age periods were:

Less than 16 years,	11
16 to 24,	97
24 to 39,	165
40 to 49,	149
50 to 59,	147
60 to 69,	98
70 and over,	44

In Scotland the rates per million persons at various ages are given as follows:

20 to 30,	84
31 to 40,	93
41 to 50,	115
51 to 60,	101
61 to 70,	93
71 to 80,	20

Who can give the explanation why the number of suicides rises so high from 35 to 60? Why thousands of children kill themselves? Why so few of the aged do so?

9. *The Suicide Rate Rises in Proportion to the School Pressure, General Education, etc.*—This statement is almost or practically equivalent to saying that suicide increases with civilization. But observed from the

standpoint of education and culture one gets a decidedly better and more concrete view. As a rule the less education, the less the number of suicides. Where education is most rigidly demanded by custom or law, as in Germany and France, there the number of suicides is greatest. And vice versa, as Russia, Spain, and Italy illustrate.

The Relation of Sundry other Factors to the Suicide Rate.—One could carry on the list much further. The theory that climate has much to do with the suicide rate needs but a glance at the comparative tables of statistics to find an easy refutation. The rates in the different parts of Italy differ between themselves as much as those of different nations. That "imitation" (emphasized by Tarde) can account for any large portion of the numbers or variations is scarcely worthy even of mention. Morselli's suggestion that mountainous regions are peculiarly free from the disease is disproved by the fact that Switzerland's rate is now among the highest. This is because "civilization" and urban life have recently progressed with great rapidity in this country. The argument from climatic influences has been dropped, together with that of any considerable influence of temperature or seasons. Economic conditions, poverty, and luxury, commercial crises, etc., as considerable causal agencies will not bear testing. There is a slight rise in the rates after wars, panics, crises, etc., but these slight waves scarcely

affect the monotonous regularity of the figures extending over longer periods. At first sight it would seem that Catholic countries are freer and Protestant ones more addicted, but this supposition, carefully analyzed is found to resolve itself into the consideration of the more certain and unvarying laws of the influence of schools, education, occupation, disease, and civilization. A similar answer applies to the freedom, real or supposed, of the Jews. Generally speaking, any theory of the ethnologic influence will not bear the tests of logic. As to suicide and morality there is no clear connection to be found. There is no clear discoverable relation between crime, illegitimacy, and suicide. There has also been much written concerning alcoholism as a cause of suicide, but that too has to be set aside as of no great influence.

"Heredity" and "degeneracy" are great words with a certain class of scientists, or pseudoscientists, but we know little or nothing as to the first, and the second is a myth, especially as applied to the figures of suicide. Both words, at best, are attempted coverings of assumed facts with names that themselves need explanation and translation into observed realities and countings.

Classification of the Causes of Suicide.—As examples of the classification of the presumed causes of suicide we may take 9,179 cases in Prussia occurring from 1873 to 1875, as given by Morselli:

1. Mental Disorders..... 269
2. Unknown and diverse..... 185
3. Weariness of life; discontent..... 121
4. Vices..... 109
5. Remorse, shame, fear of condemnation..... 104
6. Physical diseases..... 61
7. Afflictions, domestic troubles..... 49
8. Financial disorders 36
9. Passions..... 34
10. Misery 32

Skelton's table of 508 cases is as follows:

1. Unknown..... 176
2. Remorse, shame 103
3. Insanity..... 60
4. Anger, quarrels..... 43
5. Satiety of life..... 22
6. Ulterior motives..... 12
7. Vice..... 12
8. Grief..... 12
9. Bodily affliction..... 11

De Greef thinks the principal social conditions causing suicide, in the order of their importance, are:

1. Poverty.
2. Family difficulties,
3. Physical suffering } of about equal power.
4. Alcoholism.
5. Fear of legal persecution.
6. Love, jealousy and debauchery.

Or in general:

1. Physical and psychical disturbances.

2. Economic difficulties.
3. Genetic troubles.
4. Moral difficulties.

As an example of the extent to which vaporous and unreal philosophizing may go one may note Durkheim's theory of the three types of suicides:

1. The egoistic, *i.e.*, those due to the morbid development of individualism.

2. The altruistic, *i.e.*, the predominance of society over individuals.

3. The anomic, *i.e.*, those due to the independence of the individual from moral restraint; social control is lost and individual desire is unlimited.

In brief, the more vague and generalized the naming of the supposed causes, the more worthless and useless. Durkheim thus helps not at all, and if in Skelton's list the errors are omitted, his classes 6, 5, and 2 may as well be added to class 1, and thus more than three-fifths of all might more conveniently be entitled "unknown." It is evident that the truth as to motive and ultimate causes cannot at present be reached in any adequate or scientific sense. The facts individually are beyond us and our curiosity, personal or scientific, except in a minority of cases. I have for a long time been gathering the newspaper reports of the suicides occurring in the neighborhood of Philadelphia and New York, and the study of the gathering makes one feel the utter worthlessness and contradictions of the re-

sults of the older tabulators. The result of my attempts to group the definite and certain causes into classes may be summarized as follows: If 100 is made to represent the total number of cases of suicides from all causes, these proportions, roughly, would be they that are the most evident and certain sources, motives, or reasons of the deaths:

20. Ill-health, physical and psychical, the latter much less important, and less accurately or definitely ascribed, than the first.
12. Sexualism, including passions, illicit and unrequited love, disappointment in love, death of the loved one, etc.
8. Following murder, quarrel, injury to others, the result of hates, grudges, quarrels, etc.
6. Loss of property, social position, failure in ambition, etc.
5. Domestic afflictions, misfortunes, failures.
4. Aimlessness, unideality, satiety of life, boredom, emptiness of mind or heart.
3. To avoid exposure after crime.
1. Inability to conquer vicious habits—alcoholism, drugs, etc.
41. Unknown, or too indefinite to classify.

The *Chicago Tribune's* report for 1905 thus classifies the reports of the causes of the 9,982 cases of suicide of the year:

Business losses	32
Liquor	375
Ill-health	411
Unknown	721
Disappointment in love	958

Domestic infelicity	1525
Insane	1826
Despondency	4134

The folly of the newspaper reports as regards the item "insanity," "during temporary insanity," etc., practically throws this class over into that of the "unknown." If the larger portion of the "Despondency" cases, is added to the "Ill-health" class the results are not very dissimilar to my own independently-made classification.

Secret Drug-taking, Tobacco, etc.—There are several factors, by their nature, and at least up to now unrecognized, and that in great part will remain undetected, which make this close and fairly accurate diagnosis much too faulty and misleading. Alcoholism, of course, and secret drug habits, as well as excessive use of tobacco, are in all probability the unknown precedents and real causes of a number of the suicides ascribed to cruder secondary and mediate causes supposed by the reporters to be the genuine ones. What roles tobacco, secret drugging,* and drinking are playing in producing the diseases and suicides of civilization is a terrifying question, which must be answered by civili-

* Only one brought in close contact with the facts knows the extent of secret drug-taking. Among professional men the physicians head the list of suicides in the United States. Doubtless a large number succumb by the slower and unknown method of suicide through cocain, morphin, etc., and probably another proportion by the quick and recognized method classed as suicide proper. The drugs are at hand in both cases. The negroes of the south are much addicted to the use of cocain.

zation in some way. But with all due allowance made the pathogenic and suicidal parts they play are far less potent than two others hitherto unsuspected and unmentioned.

The Ultimate Sources of the Illogicalities of Suicide-Statistics.—To the observant student it is frequently evident that the supposed causes, reasons, or motives of the suicide are palpably incorrect. Quarreling, anger, disappointments, thwarted ambition, poverty, imitation, boredom, psychic diseases, whim, even sexualism and alcoholism, are often only pretexts hiding deeper grounds, the innocent executioners, in fact, of precedent ignorances and mistakes, and of inabilities to meet the challenging circumstance. They directly contribute and are charged with the crimes of more elusive and genuine causes and necessities. They produce the great body of the monotonous and unvarying minimum of cases of any social group. But the puzzling mysteries of suicide statistics consist of other factors which so far have eluded the curiosity and study of the statisticians and philosophers. These inexplainables, as we have seen, are: The increase of suicide *pari passu* with advancing civilization; the high urban rate; the strange influence of occupation; the variability of the rate in different social groups; the relative male and female rate; the high rate in the unmarried and divorced, especially of males; the perplexity of age incidence; the dependence of the rate

on school pressure and education. All of these mysteries, I think, are at once resolved by the influence of two diseases hitherto unobserved and hence not brought into the reckoning. All investigators have been unwittingly seeking the hidden variants which are at work beneath the illogic of the figures, and which have turned the study into a disheartening mystery of contradiction, or a ludicrous chaos of unscience. These secret variants are venereal disease and the systemic effects of eyestrain.

The Role of Venereal Diseases.—The estimates made by the most expert syphilographers of the number of American citizens afflicted with the two forms of these diseases varies greatly, some saying that it is as low as 40 percent, others as high as 80 percent. If the lowest is the more accurate, the lesson is sufficiently horrifying. According to the 1906 report of Messrs. N. W. Ayer and Son, there are over 23,595 newspapers and periodicals published in the United States. The larger portion of these, and especially those of the town and country districts, have derived a great part of their income from the advertisements of quacks and nostrums, the very nature of which may hardly be described in decent language. Every genitourinary and gynecologic specialist, as well as most general physicians, well know of the myriads of tragedies caused by these diseases and fostered by the wretches who delude their victims. The nature of these phys-

ical infections is such that the minds of the sufferers are easily and often made morbid and introspective, and to such a degree that the hidden shame, doubled by the deceptions of the quacks, renders these patients more secretive. Finally the burden can be borne no longer, and the number of suicides from erroneously stated, or "unknown" causes is thus increased. With every advance of civilization there is an increase of those afflicted with these infectious diseases; urbanization is an infallible method of adding to the number; the fact throws a lurid light upon the higher suicide rate of the male everywhere existing; and upon the higher rate among the single than among the married, and upon the still higher rate among the divorced and widowed. The ramifications of these diseases are infinitely subtle and hard to trace, but as surely continuously present and permeating everywhere, among the innocent as well as among the guilty. Evade and avoid the duty as much as civilization may, there is no escaping it, and Government and an enlightened public opinion must finally grapple with the problem in most serious and effective earnest.

The Influence of Scoliosis on the Suicide Rate.—Five experts examined thousands of school children in five large European cities and they found on the average that, by fourteen years of age, 27 percent had lateral curvature of the spine. Undoubtedly a large number have the deformity undetected and in its functional

stages. The school children of the United States, beyond question, have the deformity just in proportion as the number of school houses, or the degree of school pressure, approximates the Central European models. Wherever there is lateral curvature of the spine there is a tendency toward, or full realization of humpback, a defect that lessens chest expansion and aëration of the blood, and increases pulmonary tuberculosis, pneumonia, etc. As I have already said "the terminal diseases seize upon the anemic, morbid, and devitalized scoliotic, and the terminal diseases occupy the minds of the pathologists and physicians to the exclusion of the early, real, and hidden causes." "The organic diseases are often merely the executioners of long precedent functional diseases." The peculiarity of scoliosis is that the slighter and more functional the disease, the more the suffering, the more disabling the reflexes and results. Another peculiarity is that in a practical sense profession and public have wholly neglected the disease in its functional and curable stages. No one examines the back in diagnosing a hundred morbid conditions resulting from back-strain, and only when the morbid curves are established, and bony changes have taken place, is the incurable curvature brought to the orthopedic surgeon.

If an erect being like man has the single small column supporting the trunk kinked or curved, the result must be pernicious. All the laws of poise, of anatomy

and physiology, are disturbed, distorted, and morbidized, resulting in many and any types of neural, cerebral, spinal, and reflex diseases. It may be that some of the greatest curses of civilization, such as epilepsy, insanity, "neurasthenia," etc., will be found due to these spinal deformities, too slight and functional to have arrested attention.

There can be no question that in the 27 percent of the young afflicted with scoliosis, the disease is due almost wholly to two causes:—(1) By the morbid writing posture, which, by the absolute laws of spinal mechanics, produces the morbid functional curves of the neck and vertebral column; and (2) by such optical defects of the eyes as necessitate habitual head-tilting in order to see plainly the most common vertical lines of print, etc. Either cause, alone or conjointly, will set up the lateral curvature and the kyphosis, at first functional, then slowly becoming organic. The laws governing the pathogenesis of these diseases I have elsewhere set forth. Now it is most noteworthy that the disease-producing writing posture is also wholly of ocular origin, so that spinal curvature, this great source of human suffering, owes its origin to the "scientific" and professional inattention to simple ocular laws. The essence of the matter is that the mysterious and supposably incurable suffering of many kinds, persistent, varying, weakening, harassing, inscrutable, and maddening, due to slight malcurvature and morbid

function of the spine, spinal cord, etc. (the sole "trunk line" of communication between the head and extremities) is directly and indirectly the source of a greal deal of suicide. It is first, and besides, the source of things worse than suicide, but by the very nature of the disease it must frequently provoke that sense of failure and despair out of which suicide must always spring.

Note, now, this: Spinal deformity, springing from the morbid writing posture, as it were, born in the schools, must be in the largest part produced by civilization, increased by every advance in civilization, by urbanization, by sedentary occupation, by every additional hour devoted to the education process, etc.*

Diseases consequent upon eyestrain, other than spinal curvature and its effects, are precisely of the kind to produce depression and despair. It is the mysterious, unexplainable, nagging, never-ceasing or ever-renewed pursuit of fate, the illogical and undeserved series of calamities, the unknown and incurable diseases, which wear out hope and resistance, and finally land us in the deaths of the morbidity table or of the suicide columns. Even if a name is attached to the disease which is killing us, a name that tells nothing, explains nothing, does nothing, that is comforting and one goes smilingly to death, as in "consumption," "Bright's disease," etc. But when neither ourselves

* A wise bookkeeper, when I told him he must have curvature of the spine, said, "Oh, I suppose so; I never knew an old bookkeeper who did not."

nor the best physicians can tell even what ails the patient, and cannot cure, or cures end only in recurrence and re-recurrence again, then hope is lost and black melancholy follows. Spinal curvature in its incipient and functional stages, with is host of sequent and distant nervous and morbid effects, is of the hidden and relentless kind to bring the patient to despair. The very existence of the vertebral anomaly is unknown either by patient or physician, and it is thus a capital illustration of an unknown, unseen enemy in the dark, tirelessly pursuing.

But of all the diseases that have afflicted humanity since modern civilization began, the other nameless and indescribable, mysterious and ever-varying ones classed as "migraine," "neurasthenia," "bilious attacks," "sickheadache," "dyspepsia," and a score of other names, seem, with diabolic cunning, designed to conquer all human resistance and heroism and wear the sufferer to utter despair.

Take "headache," "migraine," or "sickheadache,"— there is no family but has its victims, even after the disease has been known for thirty years to be due to eye-strain. There is no adult that cannot remember one or more instances of the awful and life-long sufferings of parents, grandparents, uncles, aunts, etc. Many can now see how the tragedies of the olden times were due to this grievous affliction. One can go into any village or city of the land and demonstrate the existence

of the disease in varying degrees and types in from 25 to 50 percent of the inhabitants. A great authority says, "the nature of the disease is unknown;" the doctors cannot cure, not even the majority of the oculists. And yet there is no more doubt in the minds of the competent that 95 percent of these patients can be cured, than that breathing stops with death. All of the symptoms of this disease are produced by use of the eyes; they cease when reading, writing, etc., is stopped, are wholly cured with scientific spectacles, etc., but the ever renewed round of headache, vomiting, depression, insomnia, constantly increasing weakness, weariness of life, and the rest, alternating with short periods of apparent health and happiness—these are the things which prepare the way for death by the hand of other diseases, or by one's own hand.

A more authoritive judge does not live than Dr. John H. Musser, of Philadelphia, Ex-President of the American Medical Association and Professor of Medicine in the University of Pennsylvania. Before the American Medical Association of last year's meeting and published in the Association's Journal, Professor Musser states:

"*The Eyes.*—The subject is familiar to all; who has not seen correction of errors of refraction relieve socalled bilious attacks, periodical vomiting, anorexia, indigestion, and other gastric symptoms? The cure of grave organic ocular defects relieves similar gastric conditions."

A great American surgeon says his most brilliant

cures in cases of threatened appendicitis and other surgical abdominal diseases have been by and through the oculist, thus avoiding the operations of the surgeon.

The indigestion and the dyspepsias, the disorders of nutrition, lie at the foundation of the diseases which lessen and kill the power-supplying forces of our life. Headaches are the evidences of diseased neural, cerebral, and mental control. The great, certainly the vast, majority of these two classes are caused by eyestrain, and in this fact one has the explanation of the hidden source, the secret variant which makes clear the mysteries of suicide. If there is added the neurasthenias, the disorders of the mind and nervous system, directly due to the difficulties and strains of vision as demanded by civilization, we have the solution of most of the mysteries, illogicalities, and anomalies which have tormented the statistician of suicide. Taking each of these mysteries in turn we find:

Civilization and the Suicide Rate.—The reason for the fundamental law of the disproportionate increase of the suicide rate caused by civilization itself is made clear, for every step of that advance we call civilization is conditioned upon that greater use of the eyes in writing, reading, and "near-work," whence eyestrain and its morbid effects spring. The scientific glasses which will absolutely neutralize this eyestrain can be supplied, but except in a few cases comparatively, such correct optical helps have not been provided. In all Europe

it is almost impossible to get them, and in the largest part of America.

The Higher Suicide Rate in Cities.—The cities are the great foci of that life which necessitate the most near-work of the eyes, in commercial, mechanical, and educational life; and hence the suicides provoked by spinal, cerebral and digestional diseases are doubled or trebled in the cities. Confinement in rooms and sedentary occupations, city life, in a word, increase the crowd diseases, especially the infectious ones, pneumonia, tuberculosis (consumption), typhoid, etc.; but not only does the consumptive not commit suicide, he is proverbially hopeful. Indeed, those continuously ill, dangerously ill, especially if their disease is named and supposed to be known, not mysterious and of unknown nature and origin, these do not commit suicide. Only those up and about but ailing, struck down for a time, and ever thus alternating between severe illness and temporary health—such are they who are driven to despair. They are the migrainous, the neurasthenic, the headache and bilious and "nervous" sufferers, and their diseases are almost always due to eyestrain and spinal curvature.

The Occupation Rates.—The suicide rate, except in soldiers, exactly corresponds, and is mathematically increased by every occupation just in proportion to the use of the eyes required by that occupation, at close range, such as is shown in the tables. Take that of

Morselli, of the suicides of Italy, 1866–1876, per million individuals:

1. Dependants, and without profession	8
2. Production of raw materials (out-of-door laborers)	25
3. Industrial supernumeraries (day-laborers, etc.)	30
4. Religion (in Italy, to be noted)	45*
5. Industrial productions	56
6. Domestic servants	68
7. Fine arts (?)	94
8. Property, movable and immovable	113
9. Transport	154
10. Medical profession	163
11. Instruction, education	175
12. Jurisprudence	217
13. Commerce	246
14. Vagrants	259
15. Public administration	324
16. Letters and science	618

The Rate in Different Countries.—Every country's condition as to the causes that produce suicide is peculiar, and especially is that of Italy exceptional, but the law in each and all is the same: The suicide rate, soldiers and tramps excepted, is exactly in proportion to the use of the eyes at work at from 12 to 18 inches distance from the object—*i.e.*, in reading, writing, handicrafts, etc. And each country's rate, as compared

* That the rate among the religious orders and priests is low is principally explained by the little amount of ocular labor done at near range. Protestant clergymen have a higher rate, but one still below that of other professions not demanding so much literary work. Parochial duties, like any other that lessen ocular labor, lessen the mortality, morbidity, and suicide rates.

with that of another, regardless of race, religion, etc., is also in exact relation to the use of the eyes as stated.

As to the higher rate in males than in females, the consequences of venereal disease and of responsibility are here manifest, but of still greater importance is the fact that that use of the eyes which causes eyestrain and is effects, is more imperative, more ceaseless, more inobviable than in women, except in the cases of seamstresses, factory workers, typewriters, etc. And a proof of this is this: In those countries, cities, etc., where women are more and more taking up the occupations of men, the suicide-rate of women is proportionally increasing. In no country is this so much the rule as in our own, and it is here that the proportion of women suicides is rapidly increasing. In 1905 the actual numbers were 6,556 men, and 3,426 women, the male rate less than double, it should be noted, while in other countries the proportion is 1 to 3 or 4. The fact is highly significant.*

* In a recent number of the *Journal of Political Economy*, two University of Chicago women, Miss Breckenridge and Miss Abbott, publish a résumé of that part of the report of the twelfth census which deals with women engaged in gainful occupations. From these statistics it appears that more than five million women were earning money in 1900, and that the rate of increase, for the decade, of wage-earning women was much greater than the corresponding rate for the employment of men. The number of women in industry actually increased faster than the female population. The gain was not confined to the East, where immigration might be supposed to have caused it, but was marked in all sections of the country. The census scheduled 303 occupations, and women appear in 295 of them.

As to the relative rates among the married and single, and the divorced, the influence of venereal diseases rises to modify but not wholly do away with the effect noted.

The Suicide Rate and the Time of Life.—But the most striking and convincing proof of the theory of the influence of the sequels of eyestrain in producing suicide pertains to the time of life at which the numbers of suicides increase, reach their acme, and decline. The following diagram from the U.S. Statistical Report, registration area, presents the matter succinctly:

NUMBER OF DEATHS AT EACH AGE PER 1,000 AT KNOWN AGES.

	1900.		1890.	
Age.	Males.	Females.	Males.	Females.
Under 15 years	1.2	7.8	3.2	2.3
15 to 19 years	18.8	100.5	23.7	92.8
20 to 24 years	68.8	158.0	69.2	158.4
25 to 29 years	92.6	135.8	92.9	144.8
30 to 34 years	103.4	109.7	99.4	99.5
35 to 39 years	114.2	124.0	103.9	83.7
40 to 44 years	117.3	90.1	100.0	83.7
45 to 49 years	113.4	75.7	119.9	81.4
50 to 54 years	105.7	50.9	110.3	83.7
55 to 59 years	76.2	40.5	82.7	49.8
60 to 64 years	62.3	28.7	68.6	40.7
65 to 69 years	50.4	27.4	53.8	24.9
70 to 74 years	35.8	23.5	41.0	13.6
75 to 79 years	25.0	14.4	20.5	27.1
80 to 84 years	9.2	7.8	8.3	6.8
85 to 89 years	1.9	3.9	2.6	6.8
90 years and over	0.8	1.3	——	——

If one should see the table of the male rate only, or even that of the combined male and female rate, one would wonder at the peculiarity of this age incidence. What a deplorable fact that at the ripest period of life, when a human being is at his highest value, from 24 to 55, he should kill himself, and the heavy investment of the community in bringing him to maturity and possibility of usefulness should be lost. There is but one fact that can explain this. The terrible disproportionate increase in female suicides from 16 to 30 years, caused, in part, by love and shame, not only does not contradict the amazing line of the general curve from 20 to 50, but should put an end to another apparently deathless superstition which has afflicted humanity, even our profession, long past its time. According to a theory hoary with antiquity, the diseases of women have been supposed to be multiplied and intensified by the menopausal factor. Expert oculists have known for many years that this factor has little or nothing to do with the increase of bodily or mental disorders. Had the upholders of the superstition cast but a single glance at the foregoing table, the nonsense might have had an ending. It is presbyopia, with its doubling and trebling of eyestrain, which occasions the increased disease and suicide at the ages of from 40 to 60. For this glance would have shown the uniformity or lessening of the female rate at this time of life, while among men (unaffected with menopausal woes!) the rate is

highest from 35 to 54. Another way to view the fact is that the average age at death in the registration area, from suicide, was 43.6 years in 1900, 44.1 in 1890. Turn where one will, the reproving of the truth is peculiarly striking. In England, 1871–1874, the proportions per 1,000 cases of suicide were as follows:

	Men.	Women.
From 10 to 15 years.....	3.7	8.2
From 15 to 20 years.....	23.2	66.7
From 20 to 25 years.....	50.5	76.2
From 25 to 35 years.....	139.3	156.2
From 35 to 45 years.....	194.5	175.1
From 45 to 55 years.....	211.7	205.9
From 55 to 65 years.....	217.8	175.1
From 65 to 75 years.....	122.5	107.7
From 75 to 85 years.....	33.3	27.7
From 85 and upwards.....	3.5	0.6

It is thus incontestable that the ages at which suicide is committed, barring the rise, in part, from love and shame in young women, is accurately paralleled by the increase of eyestrain and its systemic sequels. The male rate shows the parallelism uninfluenced by the temporary factor especially present in young women. At the end of the presbyopic strain, at a little over 60, the eyestrain factor ends, and the steady contributing factors of lessening vitality, outlived life, failure of a dozen different kinds, find their proper function in the quickly lessening rate. The profound cause, the secret variant, is the ocular function of accommodation,

which, with almost unexceptionally present astigmatism, etc., is put to impossible tasks with the beginning of adult life, rises to doubled tragedy at about 30, and is quadrupled at the ages of from 40 to 60.

Suicide and School Pressure.—That the variant suicide rate in different countries and communities depends so largely upon the spinal, the cerebral and nervous, and the nutritional diseases caused by eyestrain gets its final confirmation in the fact that suicide everywhere depends upon the school pressure or the educational compulsion. The greater the number of hours of study demanded of the school child and youth, the greater the number of suicides. The exact figures of all nations are impossible to obtain, but Hon. W. T. Harris of the U. S. Bureau of Education writes me that in the German speaking countries (where the suicide rate is highest) the rule in general is about 1500 hours of schooling per annum. The average in United States schools is in the neighborhood of 1,000 hours. Bronc said that the number of suicides in a country could be calculated from the number of pupils in the public schools, and Morselli states that Saxony is the most advanced as to schools and education, and it is the focus of irradiation of suicide in all Central Europe. In the conscription of 1865–1873, 59 percent of the Italian conscripts could not read and write, 23 of the Belgian, and 3 of the Prussian. Mayo Smith says that, "the connection of suicide with education is

explained, of course, by the fact that mental development brings greater danger of nervous disorders and greater sensitiveness to mental and physical suffering." But does it? One may promptly answer, *No.* That is a clear case of begging the question; and moreover the explanation does not at all explain. It is at one stroke a *petitio principii* and a *lucus a non lucendo. Per se* intellectual development or "culture" has no connection with ill-health; of itself it is not a cause of "nervous disorders," or of "greater sensitiveness to mental and physical suffering." Something else that may or may not accompany the intellectual progress may cause these morbid products; if one looks about him he quickly sees that his intellectual and educated friends are no more prone to morbidity than those not so mentally progressive. It is a proverbial fact that great intellectual men have generally exceptionally long lives. A glance at any table of the relative incidence of suicide mortality of the different occupations, at once ends such a contention. The explanation of De Greef that "the prevalence of suicide in the intellectual and liberal professions is due to a peculiar instability resulting from their specialty—a disturbance of equilibrium," again covers with words but does not explain. All such reasons miss the true reason that in general the amount of "near-work" with the eyes is the governing condition, and that certain eye-defects, especially astigmatism, ruins the health of the "educated,"

while in those without such optical defects there is freedom from suffering regardless of the intellectual or ocular work. Let us discriminate!

The increase of child suicides in countries demanding the greatest number of school hours throws another lurid light on this aspect of the question. In Prussia the number of children committing suicide has steadily risen. In 1896 there were 2 cases under 10 years of age, 63 from 10 to 15, and 444 from 15 to 20—333 school boys and 176 girls, a total of 509. Failure in examinations or promotion, or fear of punishment were the motives ascribed in the majority of cases. What a ghastly commentary! Again appears the disproof of the fallacy as to the supposed cause of mischief in menophania and love. There were 333 boys and 176 girls, under 20, who committed suicide. Hence even in the high suicide rate of young women it is probable that eyestrain is a frequent cause, as it is in young men, rather than passion and shame. The common diseases of children generally caused by eyestrain, the forerunners and prophecies of coming tragedies, are night terrors, nervousness, loss of appetite, anemia, vomiting, dyspepsia, headache, migraine, etc. The youth who shows an exceptional intellectual development does so by means of study and reading. In this way the truth that may be in Byron's, "Whom the gods love die young," acquires a new and real, a medical significance.

Pleasure seeking as a profession, the rage for luxury, "the pace we lead," "the strenuous life," have been vaguely and uncritically charged with vastly increasing the mortality, morbidity, and suicide rates. There may be many reasons for discouraging and inveighing against these things, but there is little reason for believing that such customs much increase the number of suicides. The strenuous do not kill themselves, nor do the pleasure seekers, those greedy of luxury and wealth. Other causes lie deeper and are more determining. Neither does the decline of religion suffice to solve the mysteries. Sir Thomas More came nearer the explanation when he justified suicide "if the disease is not incurable, but also full of pain, making life a torment." In Oriental countries the desire to escape disease and suffering is acknowledged to be the source of most of the suicides that occur.

The Causes of Suicide in the United States.—Take the not untrustworthy report of the *Chicago Tribune* (Dec. 31, 1905) as to the causes of the nearly 10,000 suicides in the United States in 1905:—"Business losses" account for only 32; alcoholism for 375; love for 958; and domestic troubles, for 1,525. No one can reasonably doubt that behind these namings not a small share would, by more exact knowledge, be found to have a better explanation in some form of physical or psychical ill-health. These cases would at least offset

those in the rest of the classes which were not due to ill-health. There remain, then, these:

Despondency	4134
"Insane"	1826
Ill-health	411
Unknown	721
	7092

to be set over against the 2,890 as probably and approximately not due to disease; that is, three times as many cases more or less certainly consequent upon ill-health, than upon all other causes combined. The enormous number that could be classified as due to "despondency" is of amazing significance. One must remember that it is the mystery and painfulness of one's affliction that leads inevitably to despair. As a rule the lethal diseases are comparatively painless, and their nature is at least supposably understood. Moreover, it is not those afflicted with the directly lethal diseases who commit suicide. It is those struck in the dark, as it were, and by an unknown fate, who despair. One could successfully show that in all history and religion the idea of and belief in Fate and Fatalism is in fact the work of disease. Vertebral disease, sickheadache, headache, bilious attacks, dyspepsias of many kinds," "neurasthenias," loss of will and vital force, nervous, cerebral, and psychic disorders, and inabilities to meet the demands of circumstance, these are the diseases

which breed despondency; they are painful, they are incurable by most modern medicine, they are diabolically presistent and inexplainable by the popular or the accepted scientific theories. And yet in the vast majority of instances they are due to eyestrain. This is a truth too long unacknowledged, although known by a few wise men for a generation. It is not "hobby-riding" or "exaggeration," or a specialist's infatuation; it is sober truth, new truth, truth that is startling thousands of observant scientific minds, and which will soon revolutionize the philosophy and the practice of medicine, and of hygiene, personal and public. Let us be wary of obscuring the truth, or of postponing its acceptance by prejudice or by a cynical satisfaction with old and accepted theory.

Some Clinical Suggestions.—In monographs on suicide, individual cases are too rarely reported, but when it is done, such sentences are often met: "From dyspepsia;" "excessive study;" "feeling so miserable;" "studying for examinations;" "suffered such torments;" "lack of self-control;" "weakness and pain to an intolerable degree;" "infirmity and illness is the cause of my suicide;" "an old complaint of my eyes came once more upon me;" "I was a draughtsman and my sight was useless to me;" "a melancholiac;" "want of sleep;" "periodic attacks of severe headache;" "brain fever;" "mental irritability;" "general health bad;" "nervous irritability."

From my own newspaper cuttings of the past few months I quote a brief word or two given as the causes of suicide: "In bad health;" "suffered much from pains in the head;" "thought he was losing his mind;" "ill in bed for a long time;" "return of melancholy;" "because his wife had been ill so long;" "ill a long time;" "addicted to morphine to relieve suffering;" "melancholy from excessive study;" "incurable illness;" "pain too great to be borne;" "upset by overstudy;" "had been in a sanitarium;" "broke down while studying;" "gastritis;" "nervous collapse;" "suffered from melancholia;" "suffered from a nervous affection for two years;" "threatened with blindness;" "broken with illness;" "depressed from lack of sleep while studying;" "despondent from long illness;" "ill-health and consequent despondency;" "in low spirits;" "worried over her health;" "not able to sleep;" "sickness has driven me to this deed;" "suffering from nervous breakdown;" "melancholia;" "ill-health for several years;" "another attack of melancholy;" "despondent after illness;" "despaired of regaining his health;" "severe toothache;" "despondency because of ill-health;" "studying hard at night."

If one looks over the biographies of the literary and musical geniuses who have done vast amounts of ocular labor, he is at once struck by the fact that some had good health and worked with ease and happiness, while others much or most of the time, were at inter-

vals plunged into intense pain, and mental and physical misery. Goethe, Humboldt, Gladstone, Mommsen, Mozart, Ruskin, Kant, Liszt, Wordsworth, Macaulay, Emerson, Hume, Verdi, Gibbon, St. Beuve, Bronte, Meyerbeer, Scott, Calderon, Hawthorne, Dumas, Scribe—a hundred others, did vast amounts of ocular labor all their lives, and they had no headache, insomnia, biliousness, or melancholy. Not one of that class was a pessimist. But Maupassant, Carlyle, Huxley, George Eliot, Lewes, Wagner, Parkman, Spencer, Margaret Fuller, Nietzsche, Symonds, Taine, Berlioz, Balzac, Tchaikovsky, Flaubert, Swift, Heine, Leopardi, and so on—how was it with these? They were pitiful and terrible sufferers all their lives, they were usually atheists and pessimists, they had all the typical symptoms of eyestrain—"migraine," sickheadache, insomnia, biliousness, vomiting, despondency, tiredness of life, whenever they used their eyes; and they got immediate relief when they stopped near-use of their eyes—*i.e.*, when they walked the hills or moors most of the day. DeQuincey, Mrs. Browning, and Flaubert saved some wreckage by means of opium; Parkman, Browning, Whittier, Darwin, and Spencer, by renouncing most all eye-work. But the others found no such methods and suffered, and their work suffered, and the world suffered, in consequence. Darwin was always near to despair; Carlyle's life was much of it a shuddering at its uselessness, and he thought death

advisable; George Eliot said that illness is the one woe for which there is no comfort—no compensation; she was ill all her life of sickheadache—due to her eyes—and fought against despondency for 40 years with heroic valor. Of Lewes the same could be said. Wagner was near to madness and suicide all his life because of his eyestrain. "For me there is no salvation but death." Parkman was afraid he really did have a strong constitution, and the riddle of his life is now solved; he was pronounced mad by great alienists, and was said to have "an inherited affection of the brain" by expert ignoramuses. A library of nonsensical writing, professional and unprofessional, need not have come into being if Mrs. Carlyle had had a scientific pair of spectacles. If Spencer could have read the necessary amount his *Synthetic Philosophy* would have lived much longer. "Neuralgia" and "neurasthenia" blasted Whittier's career. Margaret Fuller's tragedy was also of ocular origin. Except Flaubert no man ever suffered more than Nietzsche and the sole cause of his suffering was his eyes. He had the worst sort of "migraine," the worst eyes, the worst kind of life, and the worst philosophy, it is possible to imagine. He lived with despair all his life, and ended his life in the insanity of cerebral paralysis produced by near use of his eyes. That Taine did not end as tragically is due perhaps to the fact that one of his eyes was excluded from function. Symonds, tormented by

eyestrain, often thought of suicide, and at 28 seriously contemplated it. The gloom and suffering from eyestrain in the case of Berlioz was so great that suicide was many times planned, and twice attempted. Once emesis prevented death, and another time he was dragged from the water unconscious and saved from suffocation by the efforts of others. "Insane depression," "profound disillusion," utter hopelessness, even at the height of brilliant success, characterized the whole life of the great eyestrain sufferer, Tchaikovsky. Mason writes of him: "He says that had he remained a day longer in Moscow he should have drowned himself, and it is said that he did go so far, in his terrible depression, as to stand up to his chest in the river one frosty September night in the hope of literally catching his death of cold and getting rid of his troubles without scandal." One of the most perfect of pessimists, one of the greatest of all sufferers from eyestrain diseases, was Flaubert, and he speaks himself of "grazing madness or suicide," always wishing for death, etc.

Dr. Pronger, of England, writes: "How often patients (eyestrain patients) have told me they have been on the verge of suicide!" and he adds that "errors of refraction are responsible for a large proportion of the suicides occurring daily." Again he says, and truly, that "it is quite conceivable that suicide would be more likely to occur in those who had been for a long time enduring the mental torture resulting from the (ocular

and other) conditions I have enumerated, and which had rendered life a burden." In my own practice I have had a number of patients who confessed that they had but barely missed suicide. Here are notes of three:

"Three months ago a professional student from a great university came to me with a typical history of intense eyestrain which had forced him twice to renounce his intended career. Utter breakdown was again upon him. The cerebral and psychic symptoms were terrible. Suicide was constantly in his mind. He returned recently to thank me for his glasses and to say he is happy and studying hard, and that he stands scornfully smiling at the locomotive as it approaches him, while he has not the least hint of his old impulse to throw himself before it."

"As I write this a patient comes in bright and happy and healthy, who, two months ago was the absolute reverse of these things, and whose life had been made as miserable as that of Wagner, and from the same cause. In his melancholy and suffering his greatest danger had been suicide. Great nerve specialists had drugged him to stupor, or had 'rested' him nearly to death. Luckily he escaped the hydropathists and Christian Scientists."

The wife of a rich physician, living in the west, at the presbyopic age of forty-four, for several years had typical sickheadache or "bilious attacks," clearly and demonstrably due to eyestrain. She would not wear glasses. In her agony she suddenly forgot home, children, and husband, and killed herself.

Almost every day one finds in the newspapers such accounts as the following:

OWATONNA, MINN., June 23.—Following the death from vio-

lent insanity of Miss Laura Kelly, brilliantly graduated last week, comes the announcement that there are in the insane asylums of the State thirty-three pupils and teachers, victims of overstudy. The pathetic breakdown of Miss Kelly, a handsome, intellectual girl of eighteen, coupled with the revelation concerning the results of undue application in pursuit of learning, will, it is believed, cause a radical revolution in the study courses of the schools and colleges.

Miss Kelly was one of the commencement speakers, and was regarded by the faculty of Pallsbury Academy as the most brilliant student the institution had ever given a certificate of graduation. She was deeply serious in her work, and finally became depressed, declaring to a friend some weeks ago that she felt sure she would go insane and live only a short time.

A few hours after she had made her commencement address she was seized with violent mania, remaining in that state until her death. Commenting upon the causes leading to her death, one of her instructors said:

"While Miss Kelly was a bright student in every sense—studious, intelligent and a brilliant conversationalist—I believe that the course of studies she followed was too exciting. It seems to me that the colleges are cramming too much into their students. Some students discard those studies which are not compatible with them, while others try to master all of them. Miss Kelly was of the latter class. Her brain gave way under the strain, as many another has done.

"There is something wrong with our study course. Pupils should not attempt to master all the branches of study, and the faculty should restrict them."

It is possible that rarely such results might arise without eyestrain but it is infinitely more probable that eyestrain is at the bottom of the mischief. Severe

study, the greatest abuse of the eyes and mind, rarely produces mental abnormalism without the added factor of eyestrain which tends so inevitably to beget loss of control of the nervous and mental mechanisms often called "nervous breakdown" and "alienation."

A STUDY OF THE CONTRIBUTIONS TO OPHTHALMOLOGY MADE BY OUR SOCIETY DURING THE LAST THIRTY-ONE YEARS.

CHAPTER XV.

A STUDY OF THE CONTRIBUTIONS TO OPHTHALMOLOGY MADE BY OUR SOCIETY DURING THE LAST 31 YEARS.*

[This article was read at the annual meeting of the American Ophthalmological Society, held in New York City, June 27, 28, 1906. It has been refused publication in the *Transactions* of the Society. After acceptance by the editors of *Ophthalmology* and of the *Annals of Ophthalmology* it has been returned by the editors of these periodicals. It was then accepted by the editor of the *Maryland Medical Journal*, and appeared in that journal January, 1907.]

In 1874 Dr. Wm. Thomson, of Philadelphia, discovered that accurate correction of ametropia cured headaches, insomnia, vertigo, various nervous and psychic ailments, nausea, failure in general health, etc. Thomson told Dr. S. Weir Mitchell of these facts and in 1874, 1875, and 1876, Mitchell and Thomson reported their cases in reputable medical journals. Again, in 1879, Thomson published a confirmatory report entitled, "Astigmatism as a Cause of Persistent Headache and other Nervous Symptoms." In 1875 Dr. R. Brudenell

* From the *Maryland Medical Journal*, January, 1907.

Carter in his Textbook on Diseases of the Eye, tells of a patient with headache, vomiting, and palpitation of the heart, who was cured by a pair of spectacles. In 1882 Dr. G. C. Savage gave clinical proofs, and stated the broad truth that sickheadache, or migraine, was caused by eyestrain. In 1883 Lauder Brunton announced that: "Megrim or sickheadache is very frequently associated with, and probably dependent on, inequality of the eyes, either in the way of astigmatism, myopia, or hypermetropia." From this time forward many trustworthy clinicians, Hewetson, Ranney, Stevens, Martin, Gould, deSchweinitz, Hinschelwood, Toms, Callan, Stephenson, and a hundred others have in varying degrees and ways, reasserted the truth of this theory. If vomiting can be caused by eyestrain other symptoms referable to diseases of the digestive organs may have a similar origin; and in 1881 I had found it so and I began publishing reports of such cases. I have continued to do so ever since. In 1898 the general practitioners, Stockton and Jones, and in 1903 and 1904, Stockton, give guarded but clear assent to the theory. In 1905 the President of the American Medical Association says:

"The subject is familiar to all. Who has not seen correction of errors of refraction relieve socalled 'bilious attacks,' periodical vomiting, anorexia, indigestion, and other gastric symptoms? The cure of grave organic ocular defects relieves similar gastric conditions."

In 1904 a wellknown and reputable American surgeon wrote and published these words:

A very large group of cases of intestinal fermentation is dependent on eyestrain. These cases are perhaps quite as often overlooked as any others, but as soon as we have all become familiar with the external signs of eyestrain fewer cases will get to the surgeon with the diagnosis of abdominal disorder. Those that I see are sent to the office most often with the request to have the appendix examined, because the distension of the cecum is apt to cause more pain than distension of other parts of the bowel and attention is attracted to this region. If there are external evidences of eyestrain these cases are referred to the ophthalmologist, along with my cases of "nervous dyspepsia" and "gastric neuralgia," and some of the most brilliant results that I have observed in any kind of medical practice have come out of the treatment that was instituted.

In 1903 an old and wellknown medical journal said editorially that even obscure gastric symptoms demand gastrotomy—advice which would compel many millions of American citizens to have their abdomens opened at once.

Dr. Robert T. Morris, a general surgeon, in the *American Journal of Obstetrics*, May, 1906, says that in young women with uterine flexions, malpositions, ovarian neuralgias, etc., these conditions should be considered as symptoms due to peripheral irritation. The first of these peripheral irritators, he says, is eyestrain, and he advises a special examination and report by an oculist. If the irritation is due to eye-

strain, neither of the lumbar plexuses will be hypersensitive.

There can be no doubt in the minds of serious men, whether lay or professional, that as a factor of general disease eyestrain is of transcendant importance. If we place the estimate at the lowest there cannot be less than one-third of all Americans who are suffering from headache, neuralgia, functional nervous and mental disorders, such as neurasthenia, insomnia, depression, etc., reflex neuroses, migraine, and functional disorders of some kind of the digestive system,—all leading to inflammatory and organic lesions. Make it lower still, and place the number at 20 millions, and admit that any considerable proportion of these diseases may be due to eyestrain and it is evident that a scientific yea or nay dictates the happiness, health, and even the life or death, of millions.

Our Society is named *American*, and also *Ophthalmological*. What has been its answer to the inquiry? Has it decided the controversy, or has it even wished or tried to do so? It is presumed that its members are those best fitted to answer and to judge. Only through ophthalmologists could the truth ever have been found, and as the entire lay world is fast coming to a knowledge of, or at least a belief in the theory, it would seem that scientific decision should be made.

Starting with the average date of the announcements of Thomson and Mitchell, 1875, the medical or scien-

tific articles published in 31 years in the Transactions of the American Ophthalmological Society number 870, with subclasses as follows:

Classes.	No. of Articles.	Percentage of all Articles.
Operations	149	17.13
Extraocular diseases as causes of ocular disease	133	15.29
Tumors	122	14.02
Instruments	94	10.80
Traumatism	59	6.78
Congenital and other anomalies	55	6.32
Refraction, as an unapplied science	26	2.97
Physiology	23	2.64
Glaucoma	23	2.64
Sundry inflammatory diseases	22	2.53
Therapeutics	21	2.41
Diseases of the lids	14	1.61
Sympathetic inflammation	9	1.03
Paralyses and pareses	8	.92
Refraction and heterophoria as related to ocular disease	8	.92
Malingering and hysteria	7	.84
Strabismus	6	.69
Physical optics	6	.69
Blindness	6	.69
Eyestrain as a cause of extraocular disease	3	.34
Winking	3	.34
Miscellaneous and unclassifiable	73	8.39
	870	100.00

It seems perfectly fair to regard these percentages as representative of the opinion, formed during 31 years of experience of our most learned ophthalmologists concerning the unsolved problems of ophthalmology, and the relative value of the different spheres of our work. Nothing could more plainly say to young men: "These are the comparative values of the different subjects you have to learn and to teach. If you wish for entrance to our society, if you wish teaching positions in your local hospitals, colleges, and communities, if you wish consultation cases, if you wish our respect and our blessing, act as we act, spend your strength on these subjects as do we. If not, Anathema! We consign you to the shame of Europe and of the medical profession, your progress will be stopped and your good name will surely pass into oblivion."

Take first the surgical aspect of the question. If we add to the number of papers on surgical operations proper those which imply surgical procedures we reach the following summary:

Operations	149	17.13
Tumors	122	14.02
Instruments	95	10.80
Traumatism	59	6.78
Strabismus	6	.69
	430	49.42

(If some of these articles do not pertain to surgery they are more than offset by others, *e.g.*, on hetero-

phoria, glaucoma, lid-diseases, etc., which at least in part do concern surgery.)

Now I, for one, deny most emphatically that 50 percent of ophthalmic practice is or should be of a surgical character. I think that 80 or 90 percent of the office work of American oculists is nonsurgical. Surgery has undoubtedly a necessary share in our work, but it is small; and the part played by medicine, therapeutics, and prophylaxis is many times as great. The beneficial results in the relief and prevention of human suffering of these departments is hundreds of times greater than surgery. I judge that the glamor, the money-making, the fame-seeking of the surgical specialist, have warped our professional judgment, have narrowed our usefulness, and have disgraced us in the eyes of scientific men. It has certainly blinded us so that we do not see our proper function in the general professional world. It has rendered us so bigoted and intimidating that we will not allow a paper on eyestrain as a cause of systemic disease to be read at our meetings, however much members would like to do so. And yet, if we had any sense of humor left, the 122 papers read on tumors, when compared with our daily office work in eyestrain, would make us burst into jeering laughter. Were Mark Twain a physician he only could do justice to this generation-long tumoresque humoresque banality.

If we glance at the next largest class of papers—

those on ocular diseases from extraocular sources—the antique "medical ophthalmology"—we find that in the estimation of our members for 31 years, this aspect of our work is held to be something like 44 times as important for human welfare and professional progress, as is that of the reverse—the ocular cause of extraocular diseases. This, one may suppose, is in obedience to the irreligious Beatitude—It is more blessed to receive than to give. What pleasure we have had in assuring general physicians and nonoculist specialists that the eye is the meekest of all the organs of the body, and we the meekest of medical babies. Eye and Eyeman welcome the results of all the bad work and diseases they pour upon us, but the eye, that noblest, most delicate, most used, and most useful organ, can do no harm to others and will never cause any trouble to its hundred neighbors and masters. Now I am certain that the future ophthalmologist will find, as many are now finding, that the cases of systemic disease caused by eyestrain are not only not 44 times less, not only 44 times more numerous, than the old medical ophthalmology of our members suppose, but are perhaps 4,400 times as numerous!

Let us come to the heart of the matter: In 31 years there have been read before the society four papers pertaining to the extraocular diseases caused by eyestrain. One of these, however, was a charming argument against the theory. It reminds one of the story

of that learned body of European medical men who gravely pronounced against the railroads then planned, and with vast erudition demanded that high board fences should be erected on both sides of the track. In this way, they said, those riding in the cars would avoid vertigo, sickness, and grave cerebral disease bound to follow from the rapid motion and changes of scene. Reduced to its essential elements the proposition of the modern ophthalmic opponent referred to was that the counting of noses fixes the truth or error of a scientific theory. If the noses of the Royal College of Physicians of Bavaria had been counted our railways would today be lined with high board fences—much to the increase, one judges, instead of the decrease, of dizziness and brain disease. And balloting, surely, was what killed poor Semmelweiss and his absurd theory of puerperal septicemia. In the same controversy Hodge and Meigs also had all the ballots with them and against the pitiful upstart, Oliver Wendell Holmes. Among the thousand proofs of the invariable law that the "leaders," or supposed leaders, in any science, never discover, and always oppose new discoveries, may also be adduced this, quoted by Dr. Croskey:

> On April 6, 1705, in the Hospital of Doornik, Brisseau performed an autopsy upon a soldier. One eye of the corpse contained a simple ripe cataract, upon which Brisseau operated. He first made a depression of the cataract; he then removed the membrane which he thought to be the cataract, and upon examination

he found that the pupil had its original black color. Upon dissecting the eye he found that the opaque lens was not in its proper position, but that it had been depressed into the vitreous. He reported his observations to the French Academy, which totally ignored his announcement, and one of its members (Duverney) advised him to keep his discovery to himself and not to make himself the laughing stock of the Academy.

In American ophthalmology "one toddled off and then there were three." But of these three one suggests no more than that eyestrain causes headache—nothing else, oh, dear no! Another carefully limits the headache-producing cause to heterophoria; and, most frightened of all, the third tremblingly hazards the thought that in one case, headache and chorea were "simulating" diseases, "just pretending earnest," as the children say, and that the choroiditis which was possibly the result of ametropia was really the cause of the head-symptoms. At best it was the old story, "This is the rat that ate the malt that lay in the house that Jack built." Of course the rat was murderously pounced upon; for example:

"A great many cases of astigmatism in young ladies of nervous temperament have been reported. A great many have come to me supplied with glasses of all kinds without being relieved. In the most of them I found sight, refraction, and accommodation normal. I have simply advised these patients general hygiene and they have got well. To prescribe glasses to almost every patient that has not a coarse organic lesion seems so much to be the tendency of the day, that very soon oculists will be called refractionists, as 25 years ago they were called iridectomists."

And not a protest was made against this farrago of arrant unscientific, inhuman, inexpert, plebeian, and positively vulgar nonsense. Never since, except once in discussion last year, has a member dared to write or speak in support of the truths which we all know are true, the truths that, not by the ophthalmoscope alone, and especially without cycloplegia, can there be any accurate refraction; that glasses do often relieve the symptoms which no "hygiene alone" can cure; that the ophthalmology revealed in the quotation is a ludicrous travesty of genuine art and science; that it is precisely the low errors of refraction "too slight to diagnose and too trivial to correct" which cause the most ruinous reflexes in the general system; that recklessness of these truths and inexpertness in the art of refraction are filling the offices, near and far, of men with finer minds and skill, who are rescuing from atrocious suffering those turned away by blunderful indifference; and, finally, that a man of healthy instincts would rather write 122 papers reporting sick-headache or spinal curvature cured, than 122,000 of melanosarcoma or cyst of the iris, or 55,000 on colobomas and other curiosities.

But as evidenced by the papers allowed to be read, the American Ophthalmological Society states to all young aspirants for membership, to all would-be teachers in medical schools and colleges, to the medical profession in general, that the theory that eyestrain

can cause any extraocular disease except, possibly, rarely, and doubtfully, headache* is not even worth mentioning. It says that even headache as a result of eyestrain is scarcely worth a glance and a sneer, that operations are 50 times as important as the whole pother about eyestrain; that ocular diseases due to extraocular causes are 44 times as injurious as eyestrain; that tumors are 40 times as harmful as eyestrain; that the devising of instruments does 31 times the good to the world; that injuries are 20 times as frequent; that describing curious congenital anomalies is of 18 times the service to humanity than would be the possible relief of all the neurasthenias, headaches, and other cerebral diseases, dyspepsias and vomitings of 20 millions; that refraction solely to better vision is of eight or nine times more benefit than "the ocular neurosis crank" could be; that physiologic problems should interest the curer of disease eight times more than all nonocular diseases; that mere physical optics is a nobler study for medical men by two to one than all the reflexes of eyestrain; and, lastly, that the mere fact of winking (*absit omen!*) is of greater suggestion and interest than all the dyspepsias, malnutritions, nervous disorders, and mental diseases that a hundred condemnable refractionists have ascribed to eyestrain. It seems a very topsy-turvey world, indeed, wherein we oculists live.

*And one member avows that frontal headache is due to the nose instead of the eye!

And sadly enough the upside-down and backside-to is bound to grow worse and more confusing! There are at least 15 million American citizens suffering from eyestrain, a large proportion of these from the systemic effects of eyestrain which are wrecking happiness, ambitions, life-work, and even life itself. All the cynicism and ignorings, all the denials will not change the fact or hinder the recognition of the truth. The ophthalmologists and their societies pretending ignorance, and assuming indifference are doomed. Hiding the head in the sand only invites a more speedy and a more ignominious end of the animal and end of the play. Why is this absurd silence and this opposition to a truth which we all know to be a truth? At least three-fourths of the daily practice of ninety-nine one-hundredths of American oculists is made up of eyestrain problems and eyestrain work. The other one-hundreth are busy a big part of their time in turning away patients they are incapable of treating, or haven't time to treat, or for other reasons will not treat. Why must official ophthalmology pretend to ignore what practical ophthalmology works at all day long? Well, that, too, should be perfectly plain to all of us.

In the first place, official and authoritative science of any kind, and especially that of medicine, and especially the ophthalmic division of medicine never discovered anything; they never even allowed any discovery to come to fruition, except when forced to do

so, and after long years of cursings of the discoverers and promulgators by the socalled "officials" and the "authorities." Only a little knowledge of history and of psychology is required to make this evident. One of the funniest of the many funny methods whereby the blind authorites oppose new discoveries is by crying, "Exaggeration" and "hobby-riding"—and all the time their own exaggeration and hobby-riding is so exalted (122 papers on tumors, 430 on surgery, etc.) that not to laugh requires an owl-like intelligence, and an amazing ability to ignore illogicalities. These authorities and their me-toos are preoccupied with the sweet self-flattery of supposing themselves too broad-minded and erudite to be "extremists" and "spectacle-peddlers;" and all the time they are shining examples of "specialism gone mad," of "hobby-riding gone to seed," and all the rest of the pet expressions used so glibly.

It requires but a modicum of acumen to see that a most extraordinary laboriousness and conscientiousness, a highly exceptional delicacy and accuracy of mind and hand are required to master the problems of refraction and eyestrain. Those who have grown up in the surgery and organic disease crudities of anatomic pathology cannot be expected to have the judgment, skill, and simple intellectual acumen required in the diagnosis and treatment of functional diseases, and in the deeper and finer problems of eyestrain and systemic

disease. We may pity and excuse this in individuals, but our duty is not to them, nor to the profession, but it is to our patients. Science and the profession may go hang; our duty is to cure and prevent disease, by any right means in our power.

The crux of the matter is accuracy in diagnosing ametropia, judgment in prescribing glasses, and an enormous conscientiousness and zeal in getting the right spectacles rightly worn. It is not exaggeration to say that 50 percent of the refraction done by America's 5,000 or more oculists is ludicrously incorrect, and would not cure eyestrain. Then fully 50 percent of all opticians' work is so inaccurate in make and adjustment that misfortune must follow even with correctly ordered glasses.

There is not a machine-shop and scarcely any manufacturing establishment in the land in which infinitely greater skill and accuracy is not daily illustrated by common workingmen than in the majority of the offices of the ophthalmic surgeons of the world. If our car axles were turned as blunderingly, our steam valves as imperfectly; if our dynamos, and watches, and scales, and a thousand instruments of precision were made with as amazing a lack of precision as the vast majority of the diagnoses of ametropia, we could not carry on our civilization for a day. The whole business would come to sorry smash. As a profession, as a civilization, we have not met the conditions demanded by the facts,

and demanded by the eyestrain cranks and hobby-riders. The sneerers and cynics of the eyestrain theory are not so illogical as it would seem, for if they had done the accurate work which is demanded they would have had thousands of their cured and grateful patients demolishing the most inexpugnable and solidly built systems of prejudice and "success."

And one of the strangest, yet inevitable results of this is that the general physician knows and recognizes the truth better than the famous oculists. A wellknown professor in a great university writes to me as follows:

"Keep hammering at the general practitioner; perhaps some time he will understand the reflexes caused by eyestrain. I, devoting all my time to internal medicine, have difficulty in compelling most oculists to bear me out in believing that eyestrain can cause so many disturbances."

So evident has the truth become to the laity that the Governor of one of the greatest and best of New England States in his Inaugural Address, says:

"There are, to quote one line of work only, children now struggling for education through pain, ailing little creatures, backward in their lessons, tortured with racking headaches, who only need relief of a complaining set of nerves by a pair of properly adjusted glasses to transform them to healthy, happy children, capable of assimilating all the benefits of their school work."

I recently received a letter of indignant protest from one of the most famous of American physicians against a plan I had urged that all children should have their

eyes carefully examined by expert oculists. In dentistry such examination is advisable; in ophthalmology it is specialism and extremism.

Finally, the vast majority of patients keep their glasses so dirty and so ill-adjusted that there is little chance for a stray success or two to escape the malignity of fate.

The "successful" oculist, surgically inclined, professionally hungry, and consultation-hunting, cannot, will not, see the truth, and he is frightened that he may see it. For he would then be compelled to revolutionize his habits of a life, his expressed opinions; he would have to belie and as he thinks, belittle himself, if the truth should get its little finger into his mental crevices. The unsuccessful, the unambitious, the scorners of medical politics, cliques, college rivalries, and hospital malignities, are too often either inexpert, or they have joined the noble army of the "me-toos." Dr. John G. Wilson, of Montrose, Pa., in the *Journal of the American Medical Association* of May 19, 1906, thus hits his finger upon another ailing place:

> It is a fact that nearly all of the headaches just above and back of the eyes are caused by defective vision, and that large numbers of school children go to their physicians and are given headache remedies without end. This is to no purpose, and they finally have to give up school on account of becoming nervous wrecks, unless by chance they happen into some jewelry store and are given some kind of lenses to wear which may relieve the trouble to some extent.

The country physician, therefore, should take up refraction work. The great mass of working people simply cannot pay the fee demanded by the oculists and are forced to put up with the indifferent work of the socalled opticians. Two or three hundred dollars will buy the necessary equipment and a month's work in some eye infirmary will give one a start, and one can do as well at once as any optician will ever be able to do.

As a profession and as specialists we have not raised our finger to prevent or to undo the deep disgrace hinted in these lines. There is not a single adequate, serious school of refraction in the world, nor is there a sign that one is coming. Yet such a school is more needed and would do more good than all the ophthalmic departments in all the medical colleges and hospitals of the world.

Moreover, there are at the least 15 millions of American children and adults afflicted with lateral spinal curvature. All the smiles of incredulity will not, alas, lessen the number, nor the horror of the consequences of the abnormalism. There is no existing machinery, no care or solicitude to prevent the sufferings, none to prevent the very existence of these millions of scoliotics. The defect arises unknown and unsuspected by physicians and by orthopedists; when it is incurable the orthopedist learns of a few of the cases. Surely over 90 percent of these scoliotics owe their tragedies to ocular malfunction, a malfunction readily demonstrable, and its result always preventable. Two months ago, for example, a

child of five years of age was brought to me with many complaints, vomiting of food, peevishness, ill-health generally; a nurse and a physician were retained as constant attendants of the child. I found a grade of astigmatism so low that great authorities in this society publicly to the profession and daily to their patients state that it is useless to correct. Both axes of this astigmatism were at 105°, a defect that produces head-tilting and spinal curvature. The child had both. Glasses were applied, and since then the incipient spinal curve has disappeared, there is no vomiting, no drugs are required, there is steady gain of weight, there is complete return to normal health. What would have been the life-history if this little one had fallen into the hands of the "ophthalmic surgeon" who scorns the refractionist; who sneers at functional and beginning disease; who does his refraction with the ophthalmoscope, and without a mydriatic; who loves surgery 50 or 500 times as much as he does the prevention of disease, who loves surgery 5 million times as much as he loves the prevention of surgery; who is 40 or 100 times more interested in a sarcoma or an osteoma, or a coloboma than in the headaches and vomitings, and "neurasthenias," and suicides of his patients.

At present we oculists are most busy and earnest, and effectually so, in creating "fake" ophthalmic and refraction schools, refracting opticians, peripatetic spectacle peddlers, and quack M. D. oculists. These things are

the direct result of our neglect, our bigotry, our money-making, and our pseudoscience. At present osteopathy is influencing legislatures, and, ignorantly, but far more successful, than many of the profession, it is treating the millions of distorted or weakened and diseased backs of our people; we neglect the study of the spinal column utterly and wholly in the functional and beginning stages of lateral curvature. Osteopathy is a product of our professional neglect and bigotry, and especially of the ophthalmic variety. Eddyism is rampant in the land, and as professional blunderers and sinners, we are, to a great extent, responsible for Mrs. Eddy and her foolish children. By our policy of ignoring and of self-satisfaction we are the creators of quack refraction, osteopathy, and faith-cure, and half of this professional blunder is to be charged to ophthalmology.

P. S.—The program of the 1906 meeting of the Society emphasizes the lessons drawn in the paper:

1. There are only 27 papers on the program, illustrating the truth that the old subjects have had all the juice sucked out of them long ago. Conservatism and *Zeitgeist* still dominate.

2. The discussion on the papers dealing with bacteriology and purulent ophthalmia ends in the old truth that frequent irrigation with pure water is of as great value as the germicides.

3. Tumors, curiosities, and anatomic pathology still

occupy the major part of the attention. The influence of hospital and dispensary practice outweighs all else.

4. There is not a paper in the program dealing with any phase of eyestrain.

5. The single paper that, from the reputation of the writer, might be suspected of heresy is placed by the committee as the last bristle on the tail of the program.

EYESTRAIN AS A CAUSE OF DISEASES OF THE DIGESTIVE ORGANS.

CHAPTER XVI.

EYESTRAIN AS A CAUSE OF DISEASES OF THE DIGESTIVE ORGANS.*

BEFORE the Section on Practice of Medicine of the American Medical Association,† in 1905, the then president of the association, the professor of medicine in the medical department of an old university, read these words:

NONGASTRIC ORGANIC DISEASES PRESENTING GASTRIC SYMPTOMS.

The Eyes.—The subject is familiar to all. Who has not seen correction of errors of refraction relieve socalled "bilious attacks," periodical vomiting, anorexia, indigestion and other gastric symptoms? The cure of grave organic ocular defects relieves similar gastric conditions.

A good-sized book, with no superfluous word, might be written concerning this astonishing admission, for: 1. Every statement made is true. 2. Every statement made is untrue. 3. Its significance is wholly unrecognized and far-reaching. 4. The history and due credit-giving are unjustly ignored.

1. Supposing that the thing intended to be said is really said, we have here an authoritative assent and

* *Jour. Am. Med. Assoc.*, March 24, 1905.
† *Ibid.*, Nov. 4, 1906.

reaffirmation of the truth that eyestrain frequently produces "bilious attacks," periodical vomiting, anorexia, indigestion, and other gastric and intestinal diseases. It is now sixteen or seventeen years since I began to affirm and to reaffirm this truth, and this is the second convert made among the diagnosticians, leading practitioners, or gastrologists. Hereafter I can merely refer critics, sneerers, ignorers, and deniers to Dr. Musser, ask them to settle their scores with him, and sing my "*Nunc dimittis*" with a smile of cheery satisfaction. No longer is it a question of the opinion of a "specialist," an "enthusiast," an "exaggerator," "a hobby-rider," a "grinder of his own axes," etc., but the president of the largest American medical society, the professor of medicine in a great medical college, and the leading diagnostician and practitioner in a large city, has spontaneously and publicly stamped the theory with the approving seal of his authority. There is abundant clinical evidence of the correctness of the intended statements of Dr. Musser in the paragraph quoted, and any practitioner can verify it in his practice by numerous patients whenever he will refer them to competent oculists and follow the histories up for a few days, a few weeks, or a few months. In this instance it is not for the affirmer to prove his statement. Any man who makes such an assertion as this, and especially one occupying the position of authority and power held by Musser, is perfectly aware of the reach

and significance of his published opinion. He has, beyond question, demonstrated it long and often, or he would not dare to come out so plainly and without equivocation. It, therefore, behooves the deniers, ignorers and cynics—the socalled "conservatives"—to prove their negation, because, by every moral and medical law, all patients continued in their sufferings by this "conservatism" may justly, and should legally, hold the deniers, ignorers and cynics criminally responsible. We hold the antivaccinationists accountable for every case of smallpox, and it is proverbially "a poor rule that will not work both ways."

How many deaths are chargeable to the prejudices of Hodge and Meigs and their blind adherents who opposed the clear logic of Oliver Wendell Holmes? And when the error-loving and truth-hating opponents and rivals of Semmelweiss ruined him professionally and allowed thousands of their patients to die they were likewise responsible. Since now a great man has authoritatively announced the frequent dependence of diseases of the digestive organs on eyestrain, those who continue their policy of not giving their patients the possibility of cure by the method suggested must settle with avenging science and the medicine of the future. They cannot longer continue the pitiful and silly cry of, "Danger, danger in such extremism," with which they and their commercial medical journals have met the demands of progress in clinical medicine.

2. It is a pity that the method of making the announcement of the paragraph was not itself beyond criticism. There is a perfectly well-understood and admitted meaning of the term "organic disease." In the paragraph-title, "Nongastric Organic Diseases," etc., this definition is contravened and mystified. Ametropia is not an organic disease. The eye with the low and common errors of refraction is in no way morbid or diseased, least of all is it organically diseased. Only by secondary endeavors to overcome the malfunction of the ametropic eye does organic disease somewhat rarely arise, either in the eye itself or elsewhere. In the vast majority of cases the attempt to overcome the error—called eyestrain—is purely functional. In the same way, in the last sentence of the paragraph, the repetitive misuse of the term is followed by the words "similar gastric conditions." But the gastric, intestinal, and pelvic consequences of eyestrain are at first, and for long, purely functional. As long functional disorder is bound to end in organic disease or anatomic pathology, so here, also, these functional disorders of digestion may finally end in inflammatory and surgical disease.* But a wiser discrimination should have guided in the making of the pronunciamento.

The motive may have been excellent which prompted

* This is so true that a great surgeon publicly states that his most brilliant cures of threatened operation, appendicitis, peritonitis, and other "surgical" diseases of the pelvis, have been made without operation, and by sending his patients to the oculist.

the writer to say, "The subject is familiar to all. Who has not seen," etc.? But method is often almost as important as motive, and in this instance it is doubly or trebly so. If it is correct to say that the subject is "familiar to all," etc., then those who show wilful ignorance of it, those who deny and scoff at it, those who do not bring the possibility of the therapeutic test to their patients—what shall be said of them? Is there any word too denunciatory, any expletive too strong, as applied to one who has seen, often and "familiarly" seen, the relief of eyestrain end bilious attacks, vomiting, anorexia, indigestion and other similar symptoms, and yet who wholly ignores the fact in his published books and articles, who does not act on the suggestion in the treatment of his patients, who scoffs at all reflexes, and who publicly laughs at all such nonsensical theories and theorists? Without the "if," I do not myself call them miscreants and scoundrels—I only ask, if it is so, is it not scoundrelism? The authority implies plainly that all physicians have seen such cures, are familiar with them, know them to be genuine and true—and yet, well, let us glance at the literature! We must remember that there cannot be less than one-third of the persons of the civilized world who are suffering from some of these enumerated symptoms and their sequels. There are several hundred millions of such civilized persons, and hence, admittedly, and at the lowest calculation, there must

be a score or two of millions suffering from digestive disorders due to eyestrain. Everybody, plainly implies Professor Musser, is familiar with and admits the fact that the correction of eyestrain gives relief in many cases of gastric and intestinal disorder. Well, if so, why do they not say so and report cases publicly? What kind of familiarity and science is that which is carefully excluded from all publication and open admission? It is, of course, sham familiarity, unscience, nonsense.

First, as to the textbooks, treatises, and monographs on diseases of the stomach or of digestion.

BOAS, 1897, "Diagnostik and Therapie der Magenkrankheiten," does not mention the eyes as possible cause of stomach diseases.

BOAS, 1901, "Diseases of the Intestines" (translation of Basch), is likewise oblivious of the "familiar" fact.

COHNHEIM, 1905, "Krankheiten des Verdaunugskanales," if "familiar" ignores the theory utterly.

DEBOVE and ACHARD, 1895, and DEBOVE and REMOND, 1893, "Maladies de L'estomac," also seem unfamiliar with this theory.

EINHORN, 1903, "Diseases of the Stomach," "has not seen," etc., or, if he has seen, has not spoken of the matter.

EINHORN, 1904, "Diseases of the Intestines," utterly ignores the wellknown theory and facts that support it.

FLEINER, 1896, "Krankheiten der Verdauungsorgane," would probably agree with the German ophthalmic surgeons in pronouncing such nonsense *Amerikanische humbug*.

FRENKEL, 1900, "Malades de l'Estomac," should come to

Philadelphia and study the subject more thoroughly before he writes again. He wholly ignores the theory.

HEMMETER, 1902, "Diseases of the Stomach," should revise almost every page of his treatise if Professor Musser is correct. He has not heard of the theory.

HEMMETER, 1902, "Diseases of the Intestines," inferentially denies both the facts and the familiarity. He is still silent.

KAHANE, 1900, "Therapie der Darmkrankheiten," is a sorry teacher if he has seen and is familiar with such facts.

MATHIEU, 1900, "Malades de l'Estomac," writes strangely if he knows the role that eyestrain plays in those maladies, for he does not speak of it.

MARTIN, 1895, "Diseases of the Stomach," is equally to be criticised.

PICK, 1895, "Magen und Darm-Krankheiten," does not allude to the affair.

RODARI, 1904, "Magen und Darm-Krankheiten," wrote too long ago, probably, to have heard of facts which in 1905 are "familiar to all."

SOUPAULT, 1905, "Malades de l'Estomac," does not agree that "all" should be construed as including French physicians.

VAN VALZAH, 1898, "Diseases of the Stomach," omits all reference to this source of gastric diseases.

WEGLE, 1905, "Magen und Darm-Ekrankungen," is also not to be included among the "all."

Of all the recent textbooks on gastric and intestinal diseases that I could find in the library of our College of Physicians, the 18 mentioned do not contain any reference whatever to what Dr. Musser says is admitted by all. I have found two, however, who do refer to it. The first is:

Reed, 1904, "Lectures on Diseases of the Stomach and Intestines," under the heading, "Acid Gastric Catarrh," p. 825, has these inciting, powerful and emphatic words: "The oculists include eyestrain among the possible causes." And we yearn, beyond consolation, to know what "oculists" so "include," and where the references may be found.

The second is:

Herschel, 1895, "Indigestion," under Reflex Causes, p. 44; this ignored teacher does not ignore, and includes himself among the "all." He writes:

"A considerable amount of attention has been paid of late to the possibility of gastric affections being set up reflexly by eyestrain. George M. Gould, in a paper published in 1890 in the *International Journal of the Medical Sciences*, stated that he had found that in the young of either sex eyestrain, to a considerable extent, often interfered with the digestive process. My own experience bears this out, as I have had in my own practice several cases in which digestive troubles appeared to depend on astigmatism. One patient in particular, a chemist in the city (London), a highly neurotic individual, used to suffer from great flatulence during the morning hours. I discovered that he was astigmatic, that he lived out of town and read a paper coming up in the train. He informed me that the flatulence invariably came on as soon as he commenced to read the paper in question. The gastric troubles promptly disappeared as soon as he discontinued reading on his way up to town."

Thus eighteen out of twenty recent systematic treatises on diseases of the digestive organs completely

ignore what a great authority says is a wellknown and highly important cause and cure of such diseases; one smiles at it in a line, and one devotes to it a half-page—with sympathy and respect, President Musser should gladly note.

How is it with the systematic practices of medicine? A highly important cause, known of all, of a vast number of cases of disease, and the means of speedy cure, should, of course, be extensively and minutely set forth and emphatically urged on the attention of the students and practitioners who receive the teachings of the great scientists and instructors. I have examined carefully the following "Systems," and "Practices," and "Manuals," and Textbooks: Leo, Allbutt, Mathieu, Ewald, Notlnagel, Debove and Achard, Anders, Bain, Bouchard and Brisseau, Brouardel, Hare, Bartholow, Hughes, Klemperer, von Mering, Monro, Osler, Salinger and Kalteyer, Tyson, Gibson, Butler, Hare, Kuhneman, Lyon, Cohen and Eshner and others.

Why do they entirely fail, even in that old foolish allusion, that is meant to be illusion, in the reference that refers nowhere, the indexing that demonstrates the author's omniscience, but also his total unconcern?

But even here the rule has its exceptions, and some unmentionables may be mentioned:

Allchin, vol. v, p. 235, wrote in 1903: Not a few cases of nervous dyspepsia may be traced to causes

acting reflexly, especially pelvic disease, and even, it is asserted, to eyestrain and astigmatism.*

French, 1905, has one or two similar strabismic allusions.

DaCosta, 1900, refers to it still more gingerly.

Hare, 1905, "Practical Therapeutics," generously allows two lines to the subject: "Eyestrain may cause stomachic disturbances, flatulent dyspepsia, and a variety of general or socalled reflex neuroses."

Musser, 1904, "Medical Diagnosis," is not so generous concerning a factor of great importance in 1905, and one "familiar to all." He allots one word to it:

"Gastric neuroses may arise directly from disease of the stomach or reflexly from disease of other organs, the brain, the spinal cord, uterus, kidneys, liver, eyes, or nose."

It is good to know that the eyes are the seventh in order of importance, and are listed before the eighth, the nose—a righteous nosology, one might add.

Loomis-Johnson, 1898, "System of Practical Medicine," under "Intestinal Neuroses," vol. iii, p. 111, article contributed by Stockton and Jones, say:

"One of the most prolific causes of functional gastric disturbances is eyestrain, and almost any neurosis may be induced by it. Gastric hyperesthesia, accompanied by hyperchlorhydria, to be followed later by more or less anesthesia and achlorhydria,

*The conjugation of these two words, as is most common, shows that the writer has not even a faint conception of the real nature of "eyestrain."

seems to bear a definite relation to astigmatism of high degree. Without attempting to refer the condition to any special form of eyestrain, we have, nevertheless, been impressed with the frequency of the association of astigmatism and muscular imbalance with painful sensory conditions of the stomach, especially taking the form of distress and pain accompanied by belching after meals, with a good appetite, but voluntary starvation through dread of pain induced by eating. These patients suffer for years and are made rather worse than better by restricted diet."

Stockton, 1903, in "Nothnagel's System," American edition, article on "Diseases of the Stomach" (not in the original), comments, p. 163, as follows:

"Cases of socalled typical gastric vertigo not infrequently depend on uncorrected eyestrain, especially on anisometropia. It is true that the attacks are often precipitated by transient disturbances in digestion, and these digestive derangements in turn may be occasioned by some eyestrain that predisposes to the vertigo. In several instances I have seen the disappearance of both vertiginous and gastric symptoms follow a careful and painstaking correction of the refractive error."

Again, under "Gastric Neuroses," p. 256, he says:

"As earlier stated, eyestrain has been found a frequent cause of functional stomach trouble, especially among those who are living an indoor life and are accustomed to the close use of the eyes. This is particularly true in cases of mixed astigmatism and anisometropia, and is often associated with muscular imbalance."

Dr. Stockton has also placed himself on record more definitely and fully in the same way in an article en-

titled, "Hygiene of the Digestive Apparatus," in Dr. Pyle's "Personal Hygiene," issued in 1904.

Of the thousands of articles, clinical or pathologic, by physicians, that in the last dozen years have appeared in the medical journals on the subject, it may be said that, in all probability, not one has recognized or emphasized the truth set forth by Dr. Musser in the few lines quoted. It is needless to enumerate. A typical example comes to hand as I write, a solemn address by Robert Hutchinson* on "Dyspepsia." Like a multitude of others, filled with light but not in the least enlightening, it is utterly oblivious of the eyestrain origin of this most common of modern diseases. No F. R. C. P. would dream of allowing such a thought to appear or even to be mentioned by him in a public way.

Thus, with the exception of one or two brief allusions in the authoritative textbooks, the "scientific" medical men of the world give no hint of their "familiarity" with a highly important source and cure of the most common of all diseases. Plainly, therefore, Dr. Musser is in error as to the knowledge of the fact by medical men. This error clearly arises from the attempt to promulgate a scientific truth by a method which shall ignore the history of the discovery and "save the faces" of those who have wilfully ignored the truth discovered and fought for by others. This may be good politics, but it is unjust, and the question

* *British Medical Journal*, Nov. 25, 1905.

remains: Will it stop the ignoring and the sneering of the "conservatives?"

If, as Dr. Musser avers, eyestrain, known of all, is responsible for a large share of the disorders and diseases of digestion and nutrition, the oculists, especially of the United States, should long ago have received the truth eagerly and should have proclaimed it loudly from the housetops and from their textbooks. It is needless to say that it is not so. I need not weary with all the negative citation of authors.

If the truth of Dr. Musser is true, the refractions of our oculists were the means of demonstrating the truth. So far as I know, only one such oculist has publicly confessed.* Concerning sickheadache or "migraine," many have done so, and in other essays I have given the details, quoted the writers and established the question of priority. Sickheadache, however, is not the subject now under discussion. Although that disease consists in the most profound and revolutionizing morbidity of the digestive process, it presents, in the main, a different clinical picture from that of "bilious" attacks, periodical vomiting, anorexia, indigestion, and other gastric symptoms described in the quotation taken as a text.

* After the above words were written, a second noteworthy exception comes to my hand, the article of Dr. Griffin, in *The Journal of the A. M. A.*, Jan. 6, 1906. Under "Disorders of Eyestrain," this frank man publishes reports of cases of diseases of the digestive organs due to eyestrain and cured by ocular treatment. All honor to him.

3. The significance of Dr. Musser's statement is not recognized, and its far-reaching consequences not discriminatingly appreciated. If it is true, then the professional and the social bearings are tremendous. It may be seen at once that the practices of nearly all physicians must be thoroughly changed in the majority, or is a large minority, of the patients consulting. Not even the specialists can be excepted, because, seek where one will, do not the majority of diseases spring directly from the disorders and diseases of digestion and nutrition, or are intimately based on or associated with them? How large a portion of the drugs advertised are directly or indirectly aimed at those conditions? What is the whole nostrum, patent and proprietary medicine business but the organized attack of quackery on the demons of "dyspepsia" and denutrition? Seventeen or eighteen years of clinical observation and study have convinced me that a far larger proportion of all gastric and intestinal diseases are due to eyestrain than even Dr. Musser and Dr. Stockton would admit.

4. If I am in error, I shall be happy to be corrected, but I think I have not mistaken when I say that the recognition of the truth of the ocular origin of these diseases of digestion was begun, and for ten or a dozen years was advocated, solely by me. I care nothing personally for questions and quibbles as to priority, but I am proud of the fact that I early and long and boldly set the truth forth, and have held to it, at first

in face of the silence of all others, then in spite of their ridicule and jeers. I began the crusade in 1888, publishing my first clinical report early in 1889* of a case of dyspepsia of twenty years' duration cured at once by glasses. I considered attentively the clinical details and the physiologic grounds of the morbid function, its cure, etc. In January,† 1890, I again gave the details of other cases, and stated that I had had in all twenty-eight patients in whom dyspepsia, anorexia, nausea, etc., were cured by the extinction of eyestrain. Later, in the same year,‡ I again returned to the charge, giving proofs and repeating the conviction that "eyestrain produces digestive troubles of various kinds, all resulting in malnutrition, anemia," etc.

In 1891,|| I reported on 277 cases of digestive and assimilative disorders (anorexia, fickle appetite, constipation, dyspepsia, nausea, vomiting—not sickheadache —car-sickness, etc.), and I wrote thereon:

"For a long time I have been begging my friends, the general practitioners, to heed the fact that digestion and assimilation may be directly and profoundly disordered by eyestrain. Nothing seems more true in medical science than this."

And much of the same purport.

Since then I have continued nearly every year to beg consideration of the fact. Not an oculist published a

* *Medical and Surgical Reporter*, Feb. 9 and March 9, 1889.
† *American Journal of the Medical Sciences*.
‡ *Medical News*, Aug. 23, 1890.
|| *The Journal A. M. A.*, Sept. 19, 1891.

line of assent or seconding. At last I convinced a few of my friends in general practice, especially one great physician of national fame, by the best of demonstrations—the restored health of patients. The misfortune of the theory consists in the self-evident fact that the cures depend on an accuracy and refinement of practical refraction which has been almost impossible and unknown and which is now only becoming more general.

The manner in which the recognition of the truth is coming about illustrates so admirably the ancient psychologic way that it should be noted. Years of utter silence and ignoring follow a discovery and the repetition or reemphasis of it by the foolhardy. Then follow ridicule, calumny, coarse dogmatism, and stupid opposition of the leaders who do not lead, the authorities who are without authority, the editors who sell themselves to the *Zeitgeist* or to their commercial salary-givers, the indifferent multitude who follow blindly the blind guides. Finally, one after another acknowledge the truth, long evident to many, impossible longer to be slandered or ignored. But the distinguishing characteristic of the confession is that it is "familiar to all" and admitted by all; but still persists the death-like silence as to how the discovery was made, by whom recognition was made necessary. There is not a hint of gratitude to those who have sacrificed themselves in the cause of truth and discovery. Instead it is said:

"It is familiar to all," "That is an old story," "We have always said so"—and then is renewed the custom of ignoring and maligning the new and different truth that, in its turn, is struggling for a chance to release other millions from their sufferings. "Conservatism" may be most expensive and criminal when it conserves only error.

There remain several important postscripts to be carefully considered:

1. It is evident that a breach has been made in what seemed the impenetrable walls of the professorial and authority-making classes. Heretofore all students of history and psychology have found that the real discoveries in medicine are ignored, scorned, and opposed by the contemporary "authorities," the leading practitioners, the professorial and presidency seeking, the committee-forming, and the textbook-making class. Some of the men composing this class are too often too far interested in themselves, their own personal success and fame. Some are seeking to hold their dearly gained and slippery power, too occupied in courting popularity, hunting LL.D. degrees, baronetcies, trusteeships, other professorships and presidencies, too desirous of doctoring the rich and those dying of organic disease, to have care for the functional diseases which, long neglected, at last land the prematurely dying in the hands of the famous consultants.

2. The question returns as to the sincerity, the effect-

ive-making and the permanency of the admission. And, first, as to the sincerity. In Dr. Musser's own textbook of last year's dating, there is but one word out of hundreds of thousands devoted to the matter "familiar to all." In his own article from which I quote, there are some 1,400 words, of which 40 are devoted to a mere statement concerning the ocular "nongastric diseases." In the discussion of Dr. Musser's paper there were 14 participants. Their opinion of Dr. Musser's "familiar to all" admission was shown in the fact that not one considered it worth even alluding to. Now, if this is a truth of value, the matter needs to be set forth in a discriminating and serious manner. We must have the rules of diagnosis to determine the methods whereby eyestrain sets up those symptoms and how certain kinds of strain beget certain digestive diseases. We need, more than all, the proofs that these general practitioners and gastrologists have cured these patients. Let the cases be reported. The editors of the great official organs of their societies will print such articles from these great men, but they often refuse to do so when the little men and the hobby-riding oculists send their manuscripts.* The editors are great friends of the "authorities." The truth is, of course, that the glittering generality,

*At the same time the editor of the *British American Journal* accepted the MS. of Hutchinson referred to, he refused an excellent article from an English oculist showing the dependence of "dyspepsia" on eyestrain.

the general and vague admission, is not taken seriously nor is it meant to be so taken.

The "familiar to all" vagueness is merely a sop thrown to Cerberus and a method of "saving one's face," so that in future years, when the despised "enthusiast and exaggerator" shall have died in establishing the contemptible truth, then those who have killed him (and their patients) by the "damning with faint praise" may proudly say, "We knew all this a generation ago and urged it and practised it."

3. But did they know and practise it? If so, the proceedings of the great socicties of oculists (through whom alone the truth could be demonstrated) and the ophthalmic textbooks, must show the thousandfold proofs of the theory of eyestrain as a cause of gastric diseases. With dreary monotony they absolutely omit such proofs and go on to discuss the cure, not the cause, of ocular tumors, inflammatory and surgical diseases. Of refraction problems and gastric diseases there is no curiosity or mention.

How is it in practice? Will Dr. Musser's colleagues, the great professors and textbook makers, see to it that the eyes of these patients have been accurately "glassed"? Will the leading diagnosticians and practitioners of New York, London, Paris, Berlin, Boston, Chicago, San Francisco, Philadelphia, Baltimore, New Orleans, and the rest, when a patient comes to them next week, seek to learn if there exists eyestrain?

If they do this will they do more than to ask in an incurious and humdrum way: "Have you been wearing glasses?" If they get a reply, "Yes, from a good eye specialist," will they rest unsatisfied? Do they care to go into the matter earnestly, scientifically? Do they seek to know that, as a rule, the greater the reputation of the "ophthalmic surgeon" the more certainly will his prescription of lenses be wholly inaccurate and wrong? Will they seek to learn that there are some 100 good and sufficient reasons why the glasses worn by patients generally are unscientific and incapable of relieving eyestrain? "Familiar to all" may be an astute (or blunderful (?)) way of rendering a truth unfamiliar to any.

4. The admission, "familiar to all," may be worse than continued silence and scorn. About thirty years ago a leading practitioner wrote several articles admitting most that "the eyestrain crank" could wish, logically implying all that he now claims and giving excellently reported clinical demonstrations. He soon saw that the professional mind could not, and would not, take in the truth. It was ignored utterly and contemptuously. The promulgator realized his error and joined forever the ranks of the ignorers. About thirty-four years ago an American oculist, known of all, stated the clear truth that sickheadache is caused by eyestrain. From that day to this, if I am not in error, he has never dared to repeat the hazardous admission

or even to allude to it. Thus it may be seen that there are good reasons for suspecting that political shrewdness and tactical acumen often have to do with hindering the progress of medicine, and that a cunning selfishness may require that thousands of patients should continue to suffer rather than that the truth should be preached, a truth which medical dogmatism may not allow to prevail.

THE OCULAR ORIGIN OF "MIGRAINE."

CHAPTER XVII.

THE OCULAR ORIGIN OF "MIGRAINE."*

If one looks into the etymology of the words megrim, hemicrania, the megrims, or migraine, he finds that the words are in origin identical; moreover, the complex, nowadays designated by these silly and meaningless terms, is made up of a hundred symptoms having nothing to do with half-headedness; and most of them are of vastly more importance than half-headedness, or even than pain on or in one side of the head. If one glances at the literature of the history of "migraine" he finds that scarcely any two authors understand the same thing by the word. If one consults present-day textbooks and monographs on the subject, there is the same confusion and misunderstanding. If one should ask any score or hundred of physicians for a definition and clinical picture of the disease, there would be the same astonishing indefiniteness and contradiction in the answers. If one should ask as to the etiology, there would be the most numerous, amusing and disorderly array of a hundred causes. If one seeks to learn what

* Read at the meeting of the American Academy of Ophthalmology and Otolaryngology held in Buffalo, N. Y., Sept. 14–16, 1905. *Jour. Am. Med. Assoc.*, Oct. 28, 1905.

organs are affected, the answers, if any are hazarded, would be found equally wide of the mark. The affection in all its forms and types is tremendously common, and yet about it exists the most amazing ignorance and opposition of view. As to therapeutics—well, professional powerlessness, utter and absolute, is confessed. Up to now our impotence has been as complete as our nescience.

Unwary authors sometimes speak of a "typical case of migraine," without explaining what they mean by the term. Textbooks, dictionaries, and professors seek, indeed, to indoctrinate the student with ideas of the typicalness of various diseases, even of "migraine," but woe to the practitioner who tries to find a case in actual life. In a broad way, and serving as a suggestive and useful distinction, however loose, all diseases may, in truth, be divided into those which usually run a typical course and those which are rarely or never typical. The more uniform and similar the course of any disease in different patients the more certainly it may be ascribed to a single, simple cause, acting on a single organ or set of organs. Such diseases are those which are highly infectious, such as yellow fever, typhoid fever, smallpox, etc. Even here, of course, the seed is not all and the soil of no importance, for the typical picture always has some slight or great variations in the outworkings of large numbers. Of the atypical diseases, migraine is, by all odds, the leader. Any

detailed description is at once false and impossible. No case-history is like that of another. This is, first, because its cause, eyestrain, is of a thousand different kinds and intensities, two cases never being alike; and, secondly, because vision is bound up in some way with almost every physiologic function and necessity; it is united with every nerve center, every bodily and psychic activity. Thus the infinitely varied morbid cause or seed is planted in an infinitely varied soil. So important is the eye itself to life and to the organism that the morbid reflex is usually not allowed to wreck itself on the eyeball, but starts at first to morbidize the cerebral organs. Hence, headache is, of all the symptoms of socalled migraine, the most constant and frequent. The low degrees of ametropia, especially astigmatism, never to be quite overcome, but the attempt to do so never to be avoided, harm the general system worse; the high defects harm the eye the most.

In a rough way we may say that the symptoms most bespoken in this disease may be grouped in six classes:

1. Periodicity, or alternation of attack and freedom from attack; but no two cases showing the same law either as to length of time between attacks, or during which the attacks last.

2. Scotoma scintillans, if occurring, always preceding the headache; half of the time not followed by headache or other symptoms.

3. Headache, in-sided, out-sided, one-sided, both-

sided, front-sided, back-sided, top-sided, bottom-sided, of a hundred different kinds, intensities, and characteristics, and ascribed to a thousand different causes.

4. Nausea, retching, or vomiting, of all possible irregularities, regularities, intensities, lengths, present in a minority of cases; the vomiting, when occurring, clearing up the crisis in a majority of cases, and followed by a reestablishment of temporary health. The nausea, patients say, is worse than the vomiting.

5. Psychic and nervous symptoms, such as dejection, often proceeding to profound depression and even to suicidal tendencies, together with nameless and indescribable sufferings, each person's descriptions differing from another's, but all agreeing in seeming exaggeration, with possible insomnia, "hysteria," "neurasthenia," "nervous breakdown," etc.

6. Physical symptoms accompanying the attacks, or following them, or replacing them during the intervals between, such as anesthesias and hyperesthesias of many kinds, extents, and intensities, paralyses, functional cardiac diseases, aphonia, influenzas and "colds," digestive disturbances and dyspepsias, skin diseases, "rheumatisms" and localized pains, spinal or shoulder pains, neuralgias, and many other symptoms.

With one or more of these classes of symptoms absent, with two or more classes mixed in a limitless number of combinations and degrees, it is evident that

there can be no "typical case," and the attempt to set the confines and describe the symptoms implicated is highly absurd. All late authors lessen the difficulty, first by a vagueness, which is a crying *confessio ignorantiæ*, and then they cut out of the list Classes 5 and 6, *i.e.*, the psychic and physical concurrents and consequents; usually, also, they do not know what to do with the pestiferous scotoma scintillans. As the periodicity is never alike, is indeed, if present, infinitely variable, this also has to be ignored. This leaves simply headache, combined with nausea or vomiting, which, of course, should simply be called "sickheadache." But never did two patients have the same kind and degree and continuousness either of headache or of stomach rebellion, and we are landed in a farcical *reductio ad absurdum*. But the solemn neurologists do not know it, and they keep crying that any described case is not migraine, not "typical," doesn't fit in their boxes, is hysteria, nonsense, a contemptible oculist's whimsy. Some of these gentlemen assume the air of Mark Twain's jumping frog, make great exertions, but they never get "forrarder" by one inch. They fling a bombastic word, "psychosis," "dementia præcox," "hysteria," "neurasthenia," etc., at the poor patient, order her to the sanitarium or to Europe, prescribe bromids, placebos, or the rest-cure; they then prepare the next edition of their textbook in which ignorance of nervous diseases vies with therapeutic

nihilism. If the oculist says he knows a cause and a cure for many cases, Dr. Dana will inform him that "the only real mental affection connected with eye-strain is the symptom-complex with grandiose ideas on the part of ophthalmologists." Dr. Fisher will also add:

> The oculist is not expected to have such a knowledge of these diseases, either pathologically or clinically, as would make his opinion of any special value, and, therefore, his statements and opinions should be taken only in such a sense as from his limited horizon of observation a partial understanding of these conditions renders possible.

Shakespeare and Molière in collaboration could not do justice to the antics of some of our modern neurologists, neither to some of our defunct commercial medical journals, whose ghosts are sometimes draped so realistically by their publishers that one would almost think them really medical and as much alive as the famous Mr. Partridge and his almanac. The *Medical Brief*, the *Medical Mirror*, the *Philadelphia Medical Journal*, the *New York Medical Journal*, the *Medical News*—how from their graves they hate and belabor the oculists! The *News*, even after its death, was heard to gibber that at least 20 percent of our citizens have gastric ulcer which the surgeon should excise at once. Think of 16,000,000 American citizens being ordered to be gastrotomized in the next 24 hours! But that, of course, is better than spectacles!

When one carefully observes this attitude of mind it becomes evident that those opposers and ridiculers are most anxious to find that the sufferers from migraine, epilepsy, neurasthenia, hysteria, melancholia, indigestion, and headache are, thank God, incurable. Their fury in ridiculing the refractionist, their blindness to his truth, their immoral misrepresenting and misreporting him, their editorial malevolence, are "indicative of much." If they had a spark of true scientific spirit, they would be glad to examine a theory and the facts supporting it which might bring some light into their darkness as to the origin of "migraine." If they had the least therapeutic zeal they would like to cure some of their patients of diseases they have all admitted incurable. If they had the least pity in their hearts of human suffering they would grasp at even a slight possibility of lessening the agonies of millions of their fellow-citizens. But of some neurologists and editors of defunct commerciomedical journals one scarcely expects humanity or medicine. What, then, shall be said of oculists who join them? Nothing, except to wonder what kind of refraction they are doing, not to have seen every day their patients cured of these diseases by the glasses ordered. Were there a scintilla of the true investigator's spirit in their minds they would themselves put on their own noses the glasses that we say cure these patients, and test the theory. In a week they would have all the migraine needed,

at least, to reduce even them to silence. I will guarantee to produce by this laudable human vivisection experiment, in the skeptics and cynics, any desired degree of "neurosis," "migraine," "neurasthenia," "hysteria," "melancholia," "dementia præcox," "degeneration," "nervous breakdown," "neurotic predisposition," "katatonic state," "major psychosis," "melancholia of involution," "psychical tonus or contracture," "forme fruste," "maniac depressive insanity," "confusional psychosis," "pseudoneurasthenia," "mysophobia," "topoalgia," "neurasthenical syndrome," and the rest. And all with a pair of 0.75 D. cylinders! The committee appointed must be composed of nonpresbyopes and made up equally of neurologists, the editors of defunct commercial medical journals, and ultraconservative "opthalmologic surgeons."

There is hardly a case of severe eyestrain reflex that, viewed in the life-history, does not show a persisting morbid cause acting on the organism, as it were, from without. Balzac said that when he did not have head misery he had digestive wretchedness, and *vice versa*. In the majority we see this cause attacking one organ after another, upsetting the normal functions of the mind, brain, stomach, liver, heart, skin, or eliminative organs, and all according to the kinds of ametropia present and the amount of work demanded of the eyes. Eye-rest at once gives relief. When presbyopia is

added, some one organ is often incapable of further normal function, and there is an end of life. Of what use are the empty words, "neurosis," "neurotic inheritance," "psychosis," etc., in such cases? Their users are tragical jokers both with science and humanity. Every good refractionist knows that the little fallacy underlying their bad logic is that, in the past, accurate refraction has not been secured for the sufferers, or that, rarely, prevention has been ignored until chronicity has made cure impossible. Not even a pair of spectacles can raise the dead.

It all comes back to the test of facts. I have epitomized a few random notes I happen to have of cases reported by good physicians of the cure of migraine by glasses. I could doubtless have gathered hundreds more if time had permitted.

For instance, about seventy years ago Piorry caught a glimpse of the true relation of the eye and megrim; he thought that "monophthalmalgia," or "iralgia," affections of the peripheral nerves of the eye, were the cause of migraine.

To Dr. William Thomson, of Philadelphia and of America, is undoubtedly due the credit of first demonstrating in a general way the causal relation of eye-strain to these nervous and migrainous disorders. This part of the history I have elsewhere indicated and epitomized. In 1876, Mitchell, in reporting Thomson's cases, might have honored himself and the profession

by seeing that migraine is due to eyestrain. He came near it; but finally and clearly he balked, and neurology again failed to realize its possibilities.

About the same time Dr. R. Brudenell Carter, in his treatise on "Diseases of the Eye," 1875, reports the case of a patient with palpitation of the heart,* headache and sickness (*Anglice*, nausea and probably vomiting), attributed to disease of the brain; he was first sent to Australia without betterment; he gave up business and a proposed marriage, his "prospects in life blighted." A pair of glasses cured him of all symptoms.

The first physician to lay down clearly the proposition that sickheadache is due to eyestrain was Dr. G. C. Savage.† To him, therefore, all honor. He was an American. He announced that he had discovered the "real cause" of sickheadache to be hypermetropic astigmatism, and that its successful treatment consisted in the use of proper glasses. Savage made a minor and natural mistake in limiting the cause of migraine to "hyperopia and astigmatism, either alone or combined," but he did not commit the egregious blunder of rushing to tenotomy; he did not even speak of heterophoria. The brilliancy of the discovery and the bravery in announcing it on Savage's part, almost,

* It is remarkable how often eyestrain is found to produce tachycardia or other functional cardiac symptoms. I think that exophthalmic goiter is usually, if not always, due to the same cause.

† *Medical and Surgical Reporter*, July 29, 1882.

if not entirely, counterbalance his subsequent silence, mysterious and insoluble, of twenty-five years, on this revolutionizing subject. Savage describes the circumstances that led up to his discovery and the rationale of the method of the cure of sickheadache by glasses. His own is the first case reported. (It is, indeed, a pity that every physician in the world is not a sufferer from the disease. He could, of course, be cured with ease, and the generation-long shame of ignoring and opposing a truth of enormous importance would end as suddenly as yellow fever in Cuba.) Savage's mother had had as violent sickheadaches as her son, but age, of course, had cured her. Atropin was as effective in our colleague's case, and glasses made the cure permanent. His sister, too, was cured in the same way, and also his preceptor, Dr. Clark. Savage comments wisely on the false views of the authors of textbooks of medical practice on the subject and on their utter ignoring of the matter; he adds:

> Although sickheadache is as common as it is dreadful, Bartholow and other writers on the practice of medicine have not said a word about it.

In 1883 Lauder Brunton, not a crank oculist, wrote* as follows:

> But frontal headache is not the only one which may arise from abnormal conditions of the eyes, for megrim or sickheadache is very frequently associated with, and probably dependent on,

* *St. Bartholomew's Hospital Reports*, vol. xix, 1883, p. 336.

inequality of the eyes, either in the way of astigmatism, myopia or hypermetropia,

In 1885, H. Bendelack Hewetson* laid stress on the fact that "correction of the eyes by cylindrical glasses relieved not only the headache, but also the intermediate dyspepsia, insomnia, and irritability of temper liable to occur in patients between the attacks of megrim."

In 1886, Dr. Ambrose L. Ranney† said that "the symptoms of sickheadache are reflex in character to a large extent, and are due primarily in almost every case to some optical defect."

In 1887, Dr. George T. Stevens issued his noteworthy book, "Functional Nervous Diseases," etc., in which he made what I judge is the beginning of a huge mistake in saying that "unlike the ordinary forms of headache migraine does not so frequently yield to simple measures of adopting glasses to correct refractive errors." The common inaccuracy at that time in correcting errors of refraction may, at least partially, excuse this error. It is noteworthy that of five cases reported in this book the first four were reported as cured without tenotomy. It is, I think, unfortunate that the operation was not also omitted in the thousands of cases since.

The next, and of all hitherto the most scientific, demonstration of the ocular origin of "migraine" was

* *Medical Times and Gazette*, March 21, 1885.
† *N. Y. Med. Jour.*, Feb. 27, 1886.

made by Dr. G. Martin.* He reports in all 352 cases, with details, of the ametropia, etc. (mostly low degrees of astigmatism, of course)—a truly noble work. One's patriotism suggests the wish that he had been an American.

In 1889, George M. Gould† reported the cure of cases of chorea, severe dyspepsia, cardiac palpitation, sick-headache, sexual disorders, etc., due to eyestrain, and in January, 1890, others of similar nature,‡ such as stammering, paralysis, anesthesia, chorea, gastric disorders, aphonia, etc. In August, 1890, he wrote,|| "Sickheadache, there can be little doubt, is very often, if not generally, due to eyestrain," etc. In 1891, in reporting§ on 833 cases of headaches, this man found 73 cases clearly to be classed as sickheadache, and he then said, "Ninety or ninety-five percent of cases are due to the eyes." He now says 99 percent.

Dr. George E. deSchweinitz, in an address before the Medical and Chirurgical Faculty of Maryland, April 26, 1900, said:

> It is unquestionably true that fully 75 percent of ocular disorders depend on anomalies of the refraction, accommodation, and motility of the eyes. Correction of such faults is followed by the greatest good to the eye and to the general organism in

* Ann. d'Oc., 1888.
† *Med. and Surg. Reporter*, Feb. 9, March 9, 1889.
‡ *Am. Jour. Med. Sci.*, January, 1890.
|| *Med. News*, Aug. 23, 1890.
§ *Journal A. M. A.*, Sept. 19, 1891.

which the strain has been interpreted by symptoms not necessarily suggestive of their origin. When one comes to think about them, these symptoms stretch out into an extraordinary train, but we have ceased to wonder, and as a matter of course investigate or cause to be investigated the eyes whenever searching for the etiology of headache of all kinds, vertigo, nausea, pseudo and habit chorea, neurasthenia and other disease phenomena of similar manifestation. We have learned that many socalled gastric troubles, tachycardia, flatulent and other types of dyspepsia, indigestions, night terrors, especially as they occur in children, may have a like origin, and we have found out that pains strangely and persistently situated in the nape of the neck, between and under the shoulder blades, at the end of the spine and deep in the mastoid may owe their origin to the same cause. These facts are widely, I think I may say universally, known, although, curiously enough, many of the most important of them find no place in the most used textbooks on general medicine,

Dr. James Hinshelwood* writes:

Such headaches due to errors of refraction may be extremely severe, sometimes accompanied by vomiting, and may even interrupt the patient's work (*sic!*). They resemble an attack of megrim, but they differ from true megrim in their bilateral distribution, and in the absence of any of the higher visual phenomena, such as fortification figures or defects in the visual fields.

One is glad to have the testimony, all the more convincing because of the writer's residence in an etymologic and clinical antiquity.

Dr. S. W. S. Toms† reports a case of "typical" sick-

* *Glasgow Medical Journal*, November, 1900.
† *Med. News*, Nov. 3, 1900.

headache in a man of 26 existing since he was a school boy, with vomiting, prostration, fainting attacks, facial pallor, small, thready pulse of high tension and frequency, the attacks lasting from one to three days. There was numbness of the extremities, scotoma scintillans, etc. For eight months after Dr. Toms ordered glasses the man had no attack; then there was one, due to bent spectacle frame; later he broke his frame and there was another attack. Other cases similar in nature are reported by Dr. Toms.

Dr. Peter A. Callan,* of New York, writes of migraine: "I have frequently found that correcting 0.25 D. of astigmatism has given complete relief." He cites one case of "a lady, ten years ago, who had suffered long and frequently from migraine who was cured by wearing glasses." He concludes, from an extended experience of years, with hundreds of cases, that he is "forced to regard eyestrain as the cause in over 75 per cent of all the cases of functional headache and migraine." This was in 1891; in a personal letter Dr. Callan says that years before this he "claimed that eyestrain is the cause of migraine, and acted accordingly."

Sydney Stephenson† reports a case of headache, four times a week, usually lasting all day, and "now and then terminating in vomiting." In fourteen months after glasses had been prescribed there had been only

* *Journal A. M. A.*, March 28, 1891.
† *The Medical Press and Circular*, Feb. 4, 1903.

a few slight attacks. Another case reported in the same article was that of a medical student with such severe headache and nausea that his parents thought to put him to another occupation. He was entirely cured by glasses. Both these patients had unsymmetric astigmatism. In a second article* Mr. Stephenson says "megrim is an affection that in my experience is often connected closely with ocular defects." "This," he adds, "is no new observation."

The following cases are reported by Stephenson:†

Let me quote the following case where the sequence of cause and effect appeared to be singularly free from fallacy: A very intelligent medical friend had suffered slightly from megrim since he was seven years of age, but as he got older, and especially as he was reading for his professional examinations the bouts had become severer and more frequent. He was affected, in fact, with classical "blind headache." The attacks began with a colored scintillating obscuration of central vision, and as this passed away, as it generally did in five to ten minutes, intense unilateral headache supervened. The attacks were always associated with nausea. They were brought on by (a) indigestion, (b) straining the eyes, as with the microscope. There was a family predisposition to megrim; the patient's mother and sister suffered severely from the affection, and two of his children were also affected. The headache, as a rule, did not last for longer than an hour, but on one occasion it persisted for four days without intermission. General remedies did little, if any, good. At last, at the age of about 39 years, the slight hypermetropic astigmatism (0.5 D.)

* *Med. Press and Circ.*, Feb. 11, 1903.
† *Ibid.*, Feb., 1903.

was corrected with spectacles for constant wear. The result was almost magical. The headaches became fewer in number and milder in character, and this has continued until the present time, some fifteen years after the glasses were prescribed. It may be added that severe headaches can still be induced by attempting to use the eyes without glasses.

In the next case the relief afforded by weak glasses was very prompt and striking: Grace C., aged 22, consulted me in November, 1902. She was a fine, robust-looking country girl, but had always been subject to headaches, which had become worse during the last two years. The pain, which was ushered in by ocular spectra, affected the frontal region, and generally lasted a whole day. It was followed by vomiting. She generally had two or three such headaches during the week. The eyes were stated to ache and to get red after close work. The headaches were definitely induced by reading or working. General medical and dietetic treatment had proved useless. On examination no defect of the external ocular muscles could be found; there was 1 D. of hypermetropia in the right eye and 0.75 D. in the left eye. Spectacles correcting this small amount of long sight were ordered for constant wear. After six weeks' use of glasses Miss C. reported that there had been no return of the headache, and that there was no aching, etc., of the eyes.

Stephenson correctly contends that migraine is not very rare in childhood. He cites the following case:

I have met with fairly typical attacks in children as young as six years. The following case, although occurring in an older child, may be quoted because one or two unusual symptoms were present: George D., aged 10, had suffered from three attacks of megrim, the first in the autumn of 1900. The attacks commence with an alteration in speech and a numbness of the right arm,

and are followed by persistent vomiting. There is a strong family history of typical hemicrania, preceded by hemianopsia, in the mother and several of her people. The patient, on examination under atropin, was found to be affected with an extremely low grade of hypermetropic astigmatism, and the weakest cylinder of the trial case (+ 0.25 D.), with its axis horizontal, was ordered for constant use. In the result, the megrim disappeared completely, and had not returned when the patient was seen a year afterward.

Dr. George H. Thomas,* of Minneapolis, says:

I have come to a settled conviction that . . . among these neuroses (due to eyestrain) I would place in order of frequency neurasthenia (which might include insomnia, irritability, weariness, and mental confusion), nervous dyspepsia, vertigo (including some forms of car sickness and sea-sickness), and, finally, migraine. Every oculist has had cases of migraine which have certainly been permanently relieved and sometimes completely cured. I could quote from my records typical cases, etc. Why eyestrain produces in one person headaches, in another blepharitis; in one nervous dyspepsia, and in another general nervous prostration; in one migraine, and in another epilepsy, is still a subject confined to the realm of theoretical speculation, logical and convincing as that might be made to appear. What we do know, however, is that there is a large amount of clinical evidence, which is growing larger every day, which shows that when certain patients with a great variety of neurotic symptoms are relieved of their eyestrain, in many of them these symptoms also disappear.

Mr. N. Bishop Farman† describes his own case of

* *Northwestern Lancet*, June 1, 1903.
† *Med. Press*, Nov. 18, 1903.

migraine, "neurovascular storm," "associated with the visual centers," and caused by incorrect glasses.

Dr. Zimmerman,* in his elaborate study, excludes from his table cases of hemicrania without nausea or vomiting, and also, most strangely, twenty-five cases of bilateral headache in which nausea and vomiting appeared. I say "strangely," because the etymology of the word, half-headedness, has long been put aside as having anything significant of "migraine." Dr. Zimmerman then tabulates what he calls his "true migraines"—"nine cases caused by eyes," eight cases cured by glasses," and "three cases improved by glasses."

Drs. S. Solis-Cohen and A. A. Eshner, general practitioners of Philadelphia, were the first in any American textbook on medical practice (issued in 1892) to acknowledge frankly that migraine may be due to eyestrain. In 1904 Dr. Cohen† has said further:

> The dependence of migraine on eyestrain as an exciting cause in a large number of cases can no longer be denied by the most doubting Thomas. . . . Unquestionably it is a truth of vast significance. Unquestionably physicians have not yet fully realized that significance.

Dr. George F. Libby‡ epitomizes the reports of ten cases suffering from nausea and headache combined,

*N. Y. Med. Jour., Nov. 21–28, 1903.
† Science, April 29, 1904.
‡ Colorado Medicine, March, 1904.

in which "correction of the refractive error gave relief in each case." In three cases with nausea unassociated with headache, relief was obtained in two cases, the third not reporting.

Dr. A. L. Derdiger * reports a severe case of chorea of fifteen years' continuance, with migraine symptoms, completely cured by glasses relieving her unsymmetric astigmatism. Another of Dr. Derdiger's patients was a lady, aged 24, with atrocious migraine for five years, the crises occurring once or twice a week. The patient's symptoms would make the neurologist cry, Hysteria! with a loud voice, and consign her to the rest-cure, or to the bow-wows. I, therefore, must quote her own description of her hypochondriac symptoms:

I have been a sufferer for years; in one day I have about fifty diseases, my head and stomach especially. I cannot eat. If I eat the lightest food, then I have indigestion; so I don't eat at all. I can't sleep, and if I do sleep for a few minutes I have such horrible dreams; I dream I am here, there, and everywhere. If I sleep a little I am always moaning, for pains are all over my body. First my back, I can't stoop, then my chest, all down my sides, my shoulders, my legs; then the pain goes toward my stomach and head, and the pain stops there. I have been to vegetarians and they told me not to eat meat, so I have not eaten meat for years. I have been to Christian scientists, and they have prayed with me, aloud and in silence, and kept it up for a long time, until I lost courage. I have taken all sorts of massages and tried all sorts of remedies for years. I see there is no improvement, but the reverse. I can't even wash a cup.

* *Chicago Med. Recorder*, 1904.

I have taken treatment from mental scientist and electric doctors, and all kinds of doctors, for a long time, but the pain became so severe that I can't stand on my feet but a few minutes before everything turns black before me. I get dizzy, buzzing in the ears, my sight grows dim, the heart palpitates, my whole body quivers, a cold sweat breaks out all over me, I feel deathly sick to my stomach, the bowels get loose, and the pain becomes so severe in my head and stomach that I am obliged to fall on the bed; sometimes I stay in bed a few hours, other times two or three days. I always thought that I had a complaint in my heart, but the physicians have examined me in private and at the hospital and said my heart was well. Even when I wash myself the pain I have is terrible; sometimes I feel so heavy that I can't move myself, and I also have a burning in my body. This burning kills me altogether, for it leaves me very weak. I have been taking music lessons, but after a half-hour practice I have such pains that even the nails of my fingers ache. After singing awhile the letters become blurred, my voice becomes husky, and the eyelids twitch so that I tremble all over.

With each attack she was forced to go to bed, and intense nausea and vomiting was always present. Three mydriatic testings were required to bring out the unsymmetric astigmatism and anisometropia, the right axis at 105°, the left 90°. She was completely cured by her glasses. Dr. Derdiger's third case was one denominated "classical neurasthenia," also cured by ocular treatment.

Dr. J. Herbert Claiborne* says:

I can cite several cases (of migraine) in young adults, in whom

* *Journal A. M. A.*, Dec. 10, 1904.

the recurrence of the periodic attacks and all the accompanying symptoms have been absolutely prevented by the correction of an ocular defect. . . . I reiterate the statement that I have had a number of cases in my practice in which the recurrence of sick-headache has been absolutely prevented by the corrections of refractive errors.

Mr. Simeon Snell* says:

Many instances of this disorder (migraine) in which the classical symptoms are present will be relieved by giving attention to ocular errors. Two medical friends who have been closely associated with me have experienced an almost entire absence of the disorder since their astigmatism was corrected. . . . Vomiting and nausea are also symptoms. . . . It is well known that they are prominent and well-recognized symptoms of some eye diseases. . . . The remedy for the condition met with in these cases is attention to the eyes.

Mr. Snell describes a number of illustrative cases, one of which was of a very severe migraine, cured by glasses.

Dr. Myles Standish, after quoting a number of statements which he characterized as dogmatic and misrepresenting, from reviews in *The Journal of the American Medical Association*, the *Ophthalmic Review*, the old-time *Medical Record*, the *Medical News*, etc., said before the Boston Society for Medical Improvement, Dec. 5, 1904:

* *Biographic Clinics*, Gould, vol. iii.

After having listened to the above extracts, I think you will readily agree with me that it ill behooves the authors of these editorials and book reviews to accuse Dr. Gould of extravagance of statement. . . .

It must have happened to every oculist who has prescribed glasses for patients suffering from migraine that when the patients returned after two or three years they related that they had been entirely relieved until quite recently, and that the return of the migraine and other nervous symptoms made them think that their glasses should be changed. After examination a change usually seems advisable, and they will probably return again two or three years later and repeat that they were immediately relieved by the glasses prescribed and that their symptoms have only again recently returned. Such cases are by no means uncommon. . . .

You will have noticed that in the extracts I read you in reference to migraine great stress is laid on the fact that migraine is often inherited, but, gentlemen, are not eyes inherited? It is very common to find similar refractive errors running through a whole family, and I myself have cognizance of one wellknown family in which there were twenty cases of convergent strabismus in three generations.

Dr. Allen Greenwood,* of Boston, says of the backward school child whose objective symptoms are those of eyestrain that "frequently the complaint is of increasing headache so that on arriving home the little sufferer has to be put to bed with what is called sick-headache."

Dr. Edwin E. Jack,† of Boston, says:

* *Boston Med. and Surg. Jour.*, Feb. 23, 1905.
† *Ibid.*

In just what proportion of cases of migraine the nerve storm is caused or precipitated by ocular strain I do not know, but I have no doubt of the connection in very many, and it would seem to me a grave omission in all such cases not to put the eyes into the best possible condition for work, even when there are no local symptoms. . . . Experience teaches that nausea, dizziness, dyspepsia, "the blues," nervousness and irritability, insomnia, brain-fag, neurasthenia and a general inability to take up the burdens of life, may all be influenced, aided or brought about by the ever-present effort of the eyes to overcome an imperfect shape or balance. To one who has seen many times the mental wreck which eyes can cause, such a connection is far from incredible and, indeed, does not seem unusual. It is, of course, hard for many to see this standpoint. The man who reads in a moving, joggling car, with his glasses askew, and has always done so with no hint of discomfort, cannot understand why I, many times under similar circumstances and in a very few minutes, have nausea and an upset stomach. This would easily prove to me, even if I were not an oculist, that the eye can affect the stomach, and experience teaches me that it can be a factor in other things as well. It would be easy, I think, to demonstrate some of these symptoms by wearing prisms placed in a certain way, or by the use for a while of cylindrical lenses with wrong axes.

Dr. Edward Payson Morrow* says:

It is fairly well understood that headaches, vertigo, confusion of ideas, nausea, and many allied symptoms, as well as functional disturbances of remote organs, may have their origin in eyestrain.

Dr. Frederick E. Cheney, an oculist of Boston, says in a personal letter:

* *Cleveland Med. Jour.*, April, 1905.

As to sickheadaches, I certainly expect to cure the greater portion of them.

The editor of the *St. Paul Medical Journal** says:

That headache, insomnia, night terrors, nervous dyspepsia, sickheadaches, migraine, and a host of other similar symptoms result from eyestrain, and are relieved by proper glasses, every physician, and especially every oculist, is well aware.

Dr. S. D. Risley, Philadelphia, has reported cases of the cure of "typical migraine" by means of glasses, and expresses himself as generally agreeing with the thesis.

Dr. W. H. Carmalt, New Haven, asks, "What ophthalmologist has not had the same or similar experiences?"

Dr. A. G. Bennett, Buffalo, "heartily indorses such conclusions."

Dr. W. F. Southard,† San Francisco, writes:

There is no specialist who has kept an accurate record of his cases for a series of years but will bear Dr. Gould out in his conclusions.

After a half-century of personal experience in conscientious refraction work Dr. John Green says:

To me the central and very significant fact is that the prostrated sufferings, always alleviated by rest from eye-work and always recurring with the resumption of studious pursuits, as portrayed in the several biographies from which you have culled,

* *St. Paul Med. Jour.*, March, 1904.
† *Pacific Medical Journal*, April, 1904.

are such as ophthalmic practitioners recognize as dependent, in many persons, on common ocular defects, and as preventable or curable by properly directed optical treatment. . . . It is surely not an extravagant contention that eyes which do not perform their function perfectly in all respects and under all conditions, or whose use is attended or followed either by local disturbances or by headache, nausea, insomnia, or other reflex manifestations, ought, without exception, to be promptly and critically examined. That such examination will very often bring to light a previously unrecognized ocular defect, and so point the way to urgently needed relief through wearing properly chosen and properly adjusted spectacles, needs only to be stated to command assent. The knowledge that relief from headache may come through wearing glasses is becoming more and more widely diffused; but comparatively few physicians have learned, as yet, to recognize the protean forms which reflex disorders of ocular origin may take on, or to estimate at its true value the service which a wise and conscientious ophthalmic specialist may be able to render.

The investigation and treatment of functional disorders dependent on structural imperfections of the visual organs call for the exercise of the minutest care, and often of almost infinite tact and patience. That the essential qualifications are sometimes conspicuously lacking in men eminent for their achievement along other lines is also true. Careless or perfunctory refractive work by an ophthalmic specialist will yield no better results than similarly defective work done by persons of inferior scientific attainments and of vastly less reputation.

At the 1905 meeting of the American Academy of Ophthalmology and Otolaryngology, either publicly or by personal communication, many members ex-

pressed themselves as assenting in a general way and in varying degrees to the proposition that "migraine" or sickheadache is caused by eyestrain. Dr. Carhart, of New York, said that when we are able to overcome the total ocular defects we can cure all cases. Dr. Weeks said that perhaps 75 percent of cases are curable by ocular treatment, but that the claim of a higher percentage was not justified. Dr. Baker, of Cleveland, said, "Let us be honest and frank. We all cure such cases every day."

Mr. C. Ernest Pronger,* Harrogate, England, considers extensively the cases of headache with nausea, retching, or vomiting, and reports many cases of typical migraine—if the word may be used—or sickheadache; many had been treated by other physicians for years, with no relief until proper glasses were ordered. It is noteworthy how often the attacks recurred when the glasses were not worn, or were broken, until the patients learned the lesson. Mr. Pronger suggests that suicide is frequently due to eyestrain, the melancholia, nervous debility, and insomnia being so frequently associated with the symptoms.

Brav† reports three cases of persistent vomiting in school children, associated with headache, dizziness, convulsive movements, etc., completely cured by correction of astigmatism, and he concludes that in school

* *Biographic Clinics*, Gould, vol. iii.
† *N. Y. Med. Jour.*, Aug. 26, 1905.

children vomiting is very often caused by astigmatic errors of refraction.

Dr. A. Ernest Gallant, of New York (personal communication), thus writes:

I most emphatically know that, in women at least, not less than 25 or 30 percent of sickheadache depends on eyestrain, and in my own practice in the neighborhood of 300 have been cured by wearing glasses when fitted by competent men. I learned to look for this condition after reading your first paper in the *Medical News* some years ago, and have thus relieved many whom others have failed to cure. This fact cannot be too strongly impressed on the minds of students, and must be hammered into the graduates of former years, etc.

Another general physician, Dr. H. Jarrett, Camden, N. J., says:

It has been my personal observation with several hundred people to find headaches as well as gastric disturbances entirely relieved by proper refraction or wearing appropriate glasses. I may go still further and speak of the vast number of nervous patients in whom the neurotic symptoms have entirely disappeared by relief of eyestrain or ocular treatment.

Dr. Howard F. Hansell, Philadelphia, writes:

I believe that sickheadache is one of the symptoms of eyestrain, and I have known patients that were cured by ocular treatment.

Drs. Stockton, Starr, F. Park Lewis, Pohlman, Phillips, Hubbell of Buffalo, Jackson of Denver, Ellis of Los Angeles, Roberts of Pasadena, Westcott of

Chicago, Willetts of Pittsburg, Lovett of Langhorne, Pa., Ball, Sherman of Cleveland, M. N. Bemus of Jamestown, N. Y., Spalding of Portland, Maine, Alleman of Brooklyn, N. Y., Pyle and Thorington of Philadelphia, assent to the following: "I believe that sickheadache often depends on eyestrain, and have known cases that were cured by ocular treatment."

Subnormal accommodation, I suspect, is far more common than is supposed, and I have suggested that it largely accounts for our failures, as oculists, to cure migraine. I have reported a number of cases in which correction of this weakness, besides the distance glasses, as bifocals, alone enabled me to cure in many most distressing cases of sickheadache. One was that of a boy of 12, with most alarming and continuous vomiting. Despite my best distance correction, the pernicious vomiting came on daily when he began to study. By adding 1.50 D. to his distance glasses as a (premature) presbyopic or bifocal segment, there was instant and permanent relief. I have prescribed bifocals in a healthy child of 9 years of age, in which the premature presbyopia was from 1.50 to 2.00.

I could give the details of perhaps a thousand cases of "migraine" or sickheadache cured by glasses. I should say that 90 percent of cases are immediately curable, and a large proportion of the rest curable in time, and so soon as the secondary systemic functional effects have been overcome. A few cases are incurable,

because these secondary effects have become organic or too chronic to allow any cure. There are also rare cases in which mental reaction has become impossible.

Of the skeptics, cynics, ultraconservatives, who smile derisively at all this, I wish simply to ask by what right ophthalmic, neurologic, humane or human, by what logical or scientific right, they dispute the testimony of Piorry, William Thomson, R. Brudenell Carter, Savage, Lauder Brunton, Hewetson, Ranney, Stevens, G. Martin, Gould, deSchweinitz, Toms, Callan, Stephenson, George H. Thomas, Farman, Zimmerman, Libby, Derdiger, Claiborne, Snell, Myles Standish, Allen Greenwood, Edwin E. Jack, E. P. Morrow, Cheney, Burnside Foster, S. D. Risley, Carmalt, Bennett, Southard, John Green, Carhart, Weeks, Baker, Brav, Pronger, Gallant, Jarrett, Hansell, Stockton, Starr, Lewis, Pohlman, Phillips, Hubbell, Jackson, Ellis, Roberts, Westcott, Willetts, Lovett, Ball, Bemus, Spalding, Alleman, Pyle, Thorington, and others? These men report many hundreds, doubtless could report thousands of cures of severe or "typical" migraine "by means of the relief of eyestrain." Are these men unworthy of belief? Are they not as honest and as scientific, as good physicians as the deniers? The conclusion must be that if the deniers have not seen such results they have not done the kind of work which produces the results. Negative testimony is in such cases utterly valueless as against the positive

testimony of those who have seen the results. Conform to the rules of science, play the game fair, and the exhibits will prove the thesis. If it is said, "True, but exaggerated," then is the admission more condemning than the pooh-pooh or the denial. "How true?" we then ask them. Demonstrate the limit; verify the little admitted! Show the exaggerators up as pseudo-scientists, and even as liars. Convince the poor, tormented millions you can't cure, that the hope held out to them is a delusion. How they will thank you! And remember that if you err too much or too little, by so much as a grain in getting your exact pound of flesh, woe to you! There is this hour more personal wretchedness and torment caused by "migraine" than by all the combined diseases of the world. It not seldom causes death, indirectly, secondarily, but still absolutely. If you fail to save one life that might be saved, what is it but murder? But prolonged suffering for a lifetime, and of the most atrocious kind which migraine produces, is worse than death. If relying on you, if by neglect, if by a glib and spurious science, one sufferer fails to find a possible cure, yours the infamy! God may not exist, and professional ethics may prove a delusion, but justice will look out for the man who takes the health and happiness of his brother in his hands and wrecks them with the sneer of callous ignorance!

INCURABLE EYESTRAIN.

CHAPTER XVIII.

INCURABLE EYESTRAIN.*

I CAN find in textbooks no systematization, no explicit statements, not even any distinct recognition of a series of clinical facts illustrated somewhat frequently in office practice, and still more frequently in hospital and dispensary work.

In thinking over my cases I have been surprised that so many have had eyestrain from causes beyond eradication or neutralization. The conditions being as they were, it was impossible to stop symptoms that were evidently due to what we call eyestrain. The causes simply could not be reached. We have looked at these conditions from every other standpoint except that of eyestrain, while it was precisely the eyestrain that mostly concerned the patient. Let us take this point of view:

Eyestrain† may be defined as the local reflex, or gen-

* This paper was accepted by the executive committee of the Section on Ophthalmology of the American Medical Association, for presentation before the Section at the Boston Session, June 5–8, 1906, where it was read, and to be published in *The Journal A. M. A.* later.

† "Eyestrain" is an incorrect and misnaming word, but it has become so common and accepted that it is now impossible to supply its place by a better and more accurate term.

eral results of ocular effort caused by congenital or acquired defects or weaknesses of the optical or sensation-making mechanisms of the eyes, by overuse of normal eyes, by injurious occupation, etc., or by diseases of other organs, which interfere with ocular function. Eyestrain is incurable, of course, when these pathogenic causes are ineradicable.

The recognition, in an individual case, of the precise reasons why eyestrain is incurable, or of the conditions impossible to remove, is highly necessary, in order:

1. That we may make the patient understand the unfortunate limits and circumstances of his life; that we may advise him against certain occupations, prescribe for him the best hygienic safeguards, whereby symptoms may be avoided, dangers lessened, etc. In such cases it is especially necessary that he understand the precise nature of the fatalism under which his life must be lived.

2. That other physicians, in ignorance of the nature of his trouble, may not err by treatment of the patient, or by operations, which cannot affect the single source of the mischief. It is bad enough that thousands of patients should be gastrologized, laryngologized, gynecologized, etc., for easily curable eyestrain, but it is far worse when the eyestrain is incurable. Hunted by their mysterious disease, patients blindly and vainly pursue relief by running from one physician to another, drift into invalidism, or into a despair which often ends

in the suicide either of self-delusion (quackery, eddyism, etc.), or of genuine self-murder.

The causes of eyestrain that we are unable to abrogate or neutralize may be classified as follows:

1. Congenital anomalies.
2. High degree of ametropia.
3. The sequels of inflammatory disease, traumatism, etc.
4. Amblyopia, or other injury of ametropia.
5. Chronic heterophoria or heterotropia.
6. Interruptions or contradictions of the normal coordinations of dextrocularity and dextromanuality.
7. Cerebral or neural disease.
8. Systemic disease, or diseases of interrelated special organs.
9. Injurious occupations, unhygienic use of the eyes, etc.

1. *Incurable Eyestrain Due to Congenital Defects, Etc.*—The most important and most frequent of these congenital anomalies is albinism, that strange failure to secrete the customary pigment of the dermal structures of the body, of the retina, iris, etc. Many years ago I published the results of a good deal of study of "The Pernicious Influence of Albinism on the Eye." It is a pity that the lessons of that study have been so little heeded by ophthalmologists, for the pathologic significance of albinism is almost wholly confined to the eye, and there is no class of possible patients more in need of our help and none so neglected. Although we cannot do away with all of their afflictions, we may greatly mitigate them. The crushing pressure of the

lids to shut out the light produces a high degree of astigmatism, at axis 90 degrees' in hyperopes, and this, with much patience in diagnosis, may be relieved. In this relief there is perhaps a doubling of the visual acuteness. But at best we can bring the albino to only about 20-50 of normal vision. Possibly also by this lessening of the amblyopia we lessen a little the nystagmus. I gather that this nystagmus of the albino is the result of a continuous and never-to-be renounced search for a portion of the retina not so exhausted by the flooding light as is the macula region, whereon the image may fall, and which will give the brain a more delimited or defined image as a stimulus. The significance of ocular albinism pertains preponderatingly to the iris. If that could be pigmented the albino's case would not be so hopeless or grievous. In one case I tried an experiment of fitting a ¼ in. ametropia-correcting lens in the center of a deep tinted London-smoked toric lens. The sudden cessation of the nystagmus which resulted brought the man down in a swoon and I could get no repetition of the experiment.

Colobomas and many other anatomic defects of the eyes may in many ways interfere with the formation of optical images. These anomalies of the fundus, I think, are not so likely to produce eyestrain as are those of the iris. For a number of years I have treated a girl with a coloboma of the iris directly below the pupil in the left eye, about ¼ in. wide at the pupillary

margin and narrowing at the corneal border. While she was a child and not studying much there was not a severe eyestrain, but as she advanced in years and scholarship there was no correction of her ametropia that gave more than the palliation of her severe headaches, brought on by study. If one might dare, if there were no danger, and if the operation were surgically successful, thorough tattooing of the cornea over this rent would undoubtedly give her relief. The continuance of her studies, amount of near-work permitted, and the ordering of her life depend on the severity of her eyestrain symptoms.

There are many other kinds of congenital anomalies which might produce eyestrain, such as microphthalmos, cataracts, peripherally located pupil, malformations and malpositions of the lenses, persistent hyaloid artery, pupillary membrane, enophthalmos, etc. I have no sufficiently well-observed cases to report illustrative of the principle involved. I have no doubt I have negligently overlooked a number. In congenital cataract or in case of lenticular pigment spots occupying much of the pupillary area it may be best to permanently atropinize the eye.

2. *High Degrees of Ametropia.*—These are in one sense, perhaps, examples of congenital anomaly, especially that of hyperopia of six or more diopters. Illustrative cases have occurred in all of our practices. What we are likely to forget is that they must almost always

necessarily handicap the patient, even if, as may rarely happen, the normal visual acuteness may be retained. This will arise either because amblyopia has been chronic or has been firmly established before proper glasses have been secured, or because no glasses can give perfect correction of such cases. I remember one patient whose errors were:

R. + S. 8.00 + C. 2.75 ax. 68°
L. + S. 7.75 + C. 2.75 ax. 105°

Neither eye had been disused and the vision in each was 20-60, later 20-50. It would have been better if this defect had been anisometropic. A second case shows the same amblyopia:

R. + S. 8.00 + C 1.00 ax. 20° = 20/60
L. + S. 7.50 + C. 1.00 ax. 150° = 20/60

After six years' struggle reduced to 20-20.

In another case showing:

R. + S. 6.00 + C. 2.50 ax. 180°
L. + S. 5.75 + C. 1.75 ax. 150°

the right had been excluded and only 20-60 vision retained, while the other eye was brought to 20-20. In such cases anisometropia is a poor, but preferable, blessing. If we could place our lenses (as has been dreamed of) inside the lids, and give them the same motion as the eye-ball, the problem would be solved, at least in great part. It is possible, but not probable, that this may be done. In approximation to this ideal

our lenses should be toric, set as close to the cornea as possible, after close cropping of the lashes.

In high astigmatism the first effect of full correction may be rejected as irritating until the ocular mechanism has become habited to it, and until the necessity becomes unconscious of turning the head instead of the eyes, in looking at objects not in the center of the field of vision. When there is high anisometropia, there may be some degree of persisting eyestrain, although I have found it will generally and eventually yield to obstinate persistence, unless the amblyopia has by neglect become incurable. I have one patient, coming to me in middle life, who is now successfully wearing over a six-diopter correction of monocular astigmatism, with reestablishment of almost lost visual acuteness, and with relief of long-existing ocular reflexes. The sole ametropia of extreme proportions that cannot possibly produce eyestrain is simply myopia in a one-eyed person. One of my patients, a great literary genius, lived for about thirty-five years, and during this time did an enormous amount of literary labor every day, with a single eye, having about twenty-five diopters of uncomplicated myopia, and he did this without the use of correcting lens. His pen-point was necessarily placed about three inches from the cornea. He never showed a sign of eyestrain as we define the term. His optical defect and necessity had a subtle and profound influence on his intellect and character,

and on the literary qualities of his published works—but "that is another matter."

In hyperopic defects, and especially in those of high degree, there is, of course, and almost always, a greater or less admixture of astigmatism; and this demands correction with perfect nicety, in order to prevent malfunction. Toric, close-fitting lenses, usually bifocals, frequent changes, skill of the optician, and all the rest, are of the utmost importance. Moreover, in high binocular ametropias there is likely to be incoordination of the external ocular muscles, and also, not to be overlooked, frequent irregularities of accommodation. Partial paralysis of accommodation, or undevelopment from disuse, is likely to exist in such cases and differing in degree in the two eyes.

As to high defects the following are noteworthy:

R. + S. 0.50 — C. 4.50 ax. 15° = 20/50
L. + S. 0.50 — C. 5.50 ax. 180° = 20/50

The anomalous axis of the right did not throw this eye out of function, because the man was a right-handed man, and the left clung to life because of its normal 180° axis.

I have a little fellow twenty-seven months old who is wearing B. E. + Sph. 10.00, apparently with almost equal acuteness of each eye. We shall probably find some astigmatism when he is a year or two older. His strabismic eye is now straight, and the glasses are so

grateful to his nervous system that the baby yells, *Wo sind meine Glazele*, if they are left off a minute.

A man of 36 could barely count the fingers with his right eye, and no lens seemed to improve. I stuck to the problem instead of calling it "amblyopia," and I found that + Sph. 6.50 + Cyl. 9.00 ax. 10° saved the man's eye and gave him 20-50 vision. This 15.5 D. in a nontraumatic case, at least in one meridian, is the highest I have ever met. There was 6.00 D. in the left with 20-40 vision.

3. *Inflammations and Traumatisms.*—These may have such organic and irremediable defects in one, or even in both eyes, that the visual act becomes thereby pathogenic. The most common of these conditions is, perhaps, the nebulous or leukomatous cornea following keratitis. In the young (and the younger the better the success) we may often lessen the opalescence by Pagenstecher's ointment and massage, and other methods of treatment. Unfortunately, Dr Alleman's proposal of electric stimulation by the contact electrode has not, as was hoped, been adopted or demonstrated of much value.

A profound impression was left on my mind by the history of one patient, a man sent to me by a general physician, with the ready-made diagnosis of "migraine." The man had never had sickheadache, so his disease was not "migraine;" the general physician could not cure this patient's headaches, so he sent him to me.

I at once notified the physician, 1, that the man never had had "migraine;" 2, that the man's headaches were caused by eyestrain; 3, that in all probability I could not cure the man of his eyestrain headaches. This was because he had a nebulous cornea of the left eye, also a very high mixed astigmatism, giving about 20-50 vision. I ordered glasses, and impressed on the patient the necessity of returning soon and frequently. Pursued by the relentless mystery of his pain, the man fled to the neurologist, who drugged and massaged him without relief; the neurologist then turned him over to the rhinologist, who took out all the turbinates of one side of the nose, saying those of the other side must be taken out, and eventually the frontal sinus opened up "by two holes." The man fled. In this man's case, I shall exclude the left eye from vision, if I can get him out of the hands of the operating rhinologists and the neurologists.

These untransparent corneas almost always cause eyestrain sometimes of a most grievous severity. I fear we greatly neglect to take this fact into consideration, and dismiss without explanations to the patient, and sometimes without correction of the ametropia. In rare cases, possibly the ametropic correction may not, especially at first, give relief; it may more rarely even increase the eyestrain, by stimulating the waning and fading effort and possibility of helpful and useful fusion which must be finally renounced. The problem

then becomes most complex and perplexing, and demands the highest judgment and skill to meet it. But purposely to exclude an eye from vision under such circumstances is a hazardous procedure, and needs long pondering. I have not, I think, been compelled to do so more than once, while final success has generally followed ingenuity and persistence to save. I have had one most instructive case which astonishingly proved the wisdom of *nil desperandum*. It was that of a man nearly frozen to death. The keratitis had produced such a dense leukoma, and apparently ruined eye-ball that several good oculists advised enucleation, fearing sympathetic inflammation of the other imperfect, but still functional eye. Enucleation was not allowed, and later the better fellow was utterly ruined, and now with the eye pronounced doomed, the man has 20-40 vision and lives a useful life.

Incurable eyestrain is a necessary result of conical cornea.

The adherent irises following neglected or badly treated iritis are often sad evidences of professional ignorance and lack of skill. If occlusion of the pupil is added, not much is left except despair, and "making the best of it." I judge that an artificial pupil generally only adds to the misery. In such cases hope of cure being renounced, the choice may lie between *laissez faire*, or hastening the exclusion of the eye, or of the cortical center, from participation in vision. But,

first, there should be a desperate attempt at ametropic correction, for, with it, nature may keep up the struggle with less pain, and with less eyestrain; even a small degree of vision preserved in one eye, avoids the danger of blows, injuries, etc., upon the blind side of the head. Rents at the corneal border of the iris, causing double pupil, etc., inevitably produce eyestrain until nature excludes the eye from visual influence. Should tattooing sometimes be tried before it is too late? I have one patient with traumatic rupture of the iris, the pupillary edge being attached to the cornea. There is also an undiagnosable irregular astigmatism. The eye is too good to exclude from vision, and the patient's symptoms are not those of traction on the adherent iris; they are due to eyestrain, but I cannot relieve them. For ten years I treated a patient, one of whose eyes had been ruined by a faulty operation. There were three artificial pupils. I had to exclude the eye from vision until the sensation was dulled and denied.

Cicatrices in or near the cornea from wounds, injuries, and operations, and producing irregular astigmatism, not seldom as we all know, cause eyestrain.

Bungling operations on the lids, entropion, ectropion, etc., have also an influence in making the visual act harder to carry out. One of my patients had a fistulous opening on the cheek through which the tears trickled all her life. It was made by a great surgeon twenty-five years ago in an attempt to open the tear-duct in

dacryocystitis. She had had enough of operations and would not dream of more. "Weeping eyes" suffused with tears are somewhat common, with eyestrain as an inevitable result.

There is in my mind little doubt that the chief cause of senile cataract is uncorrected or miscorrected ametropia. In eyes previously long and properly glassed it does not occur. We all know how incipient cataract often increases eyestrain and necessitates frequent changes in refraction. "The headache of incipient cataract" has become a familiar term. If the cataract is monocular and is advancing, I think it generally advisable to exclude the eye somewhat early. Usually the earliest stages do not affect the center of the pupillary area. When the clear space chosen for vision is at one side of the pupil, eyestrain inevitably follows from the effort to get the macula in line with it.

I have had cases in which vitreous opacities seemed to cause or increase eyestrain. They oftener cause the patient great worry and quacks make much money out of them. Muscæ volitantes do not cause eyestrain if they are really physiologic, as properly speaking they generally are. One has constantly to calm the fears of patients in reference to them.

Ametropic choroidoretinitis* is very common, indeed, almost always exists in long uncorrected ametropia. It is a perfect example of the "vicious circle" of disease,

* See *Archives of Ophthalmology*, 1890.

for it is the result of eyestrain, the local effect, and at once it becomes the cause of further eyestrain, both local and general.

Other forms of choroiditis, and of retinochoroiditis, do not usually produce eyestrain unless the macula region is implicated, and unless it has ended in floating vitreous opacities. If one macula is destroyed or badly injured, eyestrain is inevitable until the eye is dulled to functionlessness. If both eyes are affected, the eyestrain must be persistent. I had a patient with both maculas so equally and irremediably hurt that new maculas had formed above the old ones. I sent him to live on a Western ranch, where he is happy.

Tenotomomania usually results in incurable eyestrain. After the muscle-tailor has done his work there is not much we can do, except to apply the proper glasses and wait for Nature's possible undoing of the injury through years of suffering. I remember one patient who had no 'phorias whatever after twenty-eight tenotomies by one graduate tenotomist. The machinery of head and body was largely devoted to getting his head in position to see every degree of change of imaging. His ocular muscles had been surgically paralyzed.

4. *Amblyopia, or Other Injury of Ametropia.*—I have elsewhere published a study of "Amblyopiatrics," or the cure of amblyopia, when it is curable. The majority of patients have some degree of ametropic choroidoretinitis or amblyopia from eyestrain, and the

majority of these are entirely curable. In extreme cases it is not curable.

The eyestrain of incurable amblyopia usually depends on the amount of near-work done. A young lady patient of mine with 20-40 vision from old uncorrected astigmatism was free from symptoms in her home, but when she went to college there was great suffering. In childhood, in a very few years, strabismus will often render the eye visually useless, even though made cosmetically useful by surgical operation. I had one patient with what I called squint hemianopsia, the temporal half, vertically, of the retina being wholly blind. One may never be sure how much the amblyopia from disuse which follows the eyestrain exclusion of an eye from visual function is due to retinal or cortical causes. And one can also never be sure that the worst cases may not be improved by long and patient amblyopiatric methods.

Some years ago a European physician found a couple of children supposably blind in a blind asylum, who still had some perception of light. He educated this remnant of function, first, in distinctions of light; second, of color; and third, of form, until the children were taught to read and were rescued from a life of blindness. A blind patient over 50 years old has been suddenly brought to perfect physical and sensational vision by operation, but it took some years to perfect intellectual vision. The lesson in all cases of ambly-

opia is that we should trust nature and help her by ingenuity and patience to improve amblyopia, and to renounce only when the impossible is demonstrated. I have had but one case in which I had to exclude the eye from vision, because the little improvement possible was a little improvement, and was not further improvable. The influence of dextrocularity in conjunction, of course, with dextromanuality will usually result in the retention of better visual acuity in the right, even with greater ametropia in the right. Nature will always aid more to save the right-eye vision than the left in the dextral.

Accommodationlessness, that is, undeveloped accommodation, may be a result of chronic exclusion of one eye from function for near-work, caused, of course, by ametropia. I have had at least three patients whose ametropia was such that one eye was used for near only, and the other only for distance. The latter eye had no accommodational power. If caught early enough in life the defect may be remedied by bifocal lenses. If the patient has passed adolescence, such a device will scarcely prove successful, and the established habit must be permitted to continue; but some eyestrain will also persist. The least intermixture of astigmatism will demand glasses, *e.g.*,

R.—S. 2.50—C. 0.50 ax. 50°
L.—Cyl. 0.25 ax. 140°

and fusion will come at once.

Subnormal accommodation* is far more frequent than is supposed, and its existence has been a prolific source of many of our past failures to relieve eyestrain. We must be on our watch for it in every patient. None of my successes have been more brilliant or satisfying both to patient and oculist than the half hundred in the past few years, by attention to this most important condition. I now have a child of nine, and another of twelve, wearing bifocal lenses with admirable results. I have found a few cases in which the subnormality differs in the two eyes.

Only the best conscience and the most expert intellect may rightly decide when to persist in stimulating or coaxing an amblyopic eye into use, and when to exclude it.

5. *Heterophoria.*—This cause of eyestrain appears to me refractional in origin and innervational in mechanism, but when it is too high, or of too long standing, it may produce eyestrain, either because too great injury has been done, or because reinstatement of orthophoria is impossible. Preventable all such conditions are, but I have not seen tenotomy of service. In the young if orthophoria is possible, by operation, it is possible by means of glasses, orthoptic exercises, etc. And without proper glasses no operation is useful, because it was the ametropia that produced the heterophoria.

Strabismus has the same law with the exception that

* See *American Medicine*, Jan. 21, 1905.

its genesis is in childhood, is quickly established, and the irreparable injury sooner completed. With strabismus fixed eyestrain ceases, because nature has despaired of help, and has renounced effort. Heterophoria is the cry of the dying eye for help; heterotropia is its epitaph. The strabismic death may sometimes be only resignation and coma, and resuscitation still be possible. Undoubtedly we frequently give up the struggle too quickly. But it is murder to delay intervention, as I was taught, until the child should be seven years old. Such ophthalmology should be put on trial for murder in the second degree. I have cured strabismus by glasses alone in patients over 30 years of age.

In those patients reaching us over 40 to 50 years of age, with high heterophoria, would it be wise to advise operation? I hardly think so. One of the best illustrative cases I have was that of a woman who had 33° of esophoria. I should have lost my patient if I had demanded operation. I incorporated with her ametropic correction 13° prisms in each eye for distance, and 7° for near, and she has never for years had enough discomfort to make her think of operation. By a marvel of the optician's art her lenses are not very heavy or unsightly.

6. *Interruptions or Contradictions of the Normal Coordination of Dextrocularity and Dextromanuality.*— When traumatism, inflammation or other cause conflicts with or extinguishes the established coordination

of dextrocularity and dextromanuality so that the left eye (in the dextral) must take up the proper dextral function of the right, eyestrain, at least for a time, almost inevitably results. There is an awkwardness, indecision, slowness, etc., of action, thought or vision, probably of all three, which may be more or less lasting. I have had a number of such cases, but the particulars are too numerous to find room here.

7. *Cerebral or Nerve Disease Occasionally Causes Eyestrain.*—Paralysis of accommodation, not from peripheral causes, but from cerebral ones, may exist, overlooked, in one or both eyes. Some eyestrain will still exist even with bifocal lenses. Failure of detection may be caused by the cycloplegia and may be present without a noticeable mydriasis. I have had a number of such cases.

Permanent myosis may cause incurable eyestrain because of evident optical reasons. I had one such case in which a famous neurologist could find no evidence of neurologic disease to account for it, and we both failed to bring about any alleviation of the symptoms patently eyestrain in nature. I had a theory that the myosis in this man's case was due to a tiny corneal opacity in the center of the pupil. My neurologic friend scorned such a philosophy.

Slight nystagmus, with small and almost undetectable excursions, flutterings, or tremblings, may, as will be readily understood, produce eyestrain. In one pa-

tient, a woman of 50, there was the most rare symptom of rotary nystagmus, which no glasses could cure. And I have had one case of monocular nystagmus that to some degree caused incurable eyestrain, although the young man had only 3-200 vision in the affected eye. Possibly the diplopia of paralytic strabismus may not be properly classed as eyestrain, and yet in one sense it is so. I have had to put two such eyes out of function by a steamed or ground glass, so slightly obscure as not to attact attention, and which at the same time would not allow vision.

There is no evidence that color blindness may co-operate in producing eyestrain, but it is possible that it may do so. Certainly in the beginning stages of optic atrophy there would probably be such an effect. I have reported a remarkable instance of hereditary optic atrophy occurring only in males, transmitted only by females, taking place from 28 to 34 years of age, and running through six generations. While the disease was in its early stages and ingravescent, one of these patients had decided eyestrain symptoms, not to be relieved by any means, of course.

I have had several patients in whom tremor of the head was a source of eyestrain.

I recently discovered one of the most unsuspected ways in which a disease of the central nervous system may produce eyestrain. I have no doubt that my little report is so far unique. My glasses had failed,

in part, to relieve in a woman of 40 the symptoms of decided eyestrain in reading, not in writing. There was no subnormality of accommodation or other discoverable cause of the perplexing fact, until I noticed that her hands had a rapid and constant tremor. I placed her newspaper or magazine against a solid body or in a book-rest, and the shivering was stopped which had caused ocular tiring.

8. *Disease of the General System.*—This condition, affecting directly or indirectly the nutrition or functions of the eye, may sometimes have some effect in causing eyestrain. This factor has been so ludicrously overemphasized in the past that it needs no more than mention here. Many "conservatives" who care nothing for scientific refraction problems have practically thrown the baby away with the bath, and have really sought to resolve all eyestrain into systemic disease. Although $\frac{99}{100}$ of their contention is ludicrously untrue, there is, nevertheless, a possible $\frac{1}{100}$ of truth in it. Although diseases of the nose and accessory organs may rarely affect the eyes, the rhinologist, and surely the operative rhinologist will have little work to do when the enormous influence of eyestrain on the nose is recognized. Much the same may be said of the gynecologist, the celiotomist, the gastrologist, and even the general physician.

9. *Eyestrain Due to Unhygienic Occupation, Use, or Abuse of the Eyes.*—In our offices we have constant

evidence of these causes. Most of these cases are obviable or remediable, and their consideration goes over into the chapter on hygiene of the eye. This is indeed a chapter which, speaking resolutely, still remains unwritten, and which, when written, will not become popular reading for a century. During this waiting-time millions of eyes will be ruined, and vast reserves of health foolishly wasted. But in a minority of cases we find ourselves unable to prevent eyestrain, so plainly present. I have often run across the prejudice of employers, school trustees, and especially of railroad officials, against spectacles, even though the employe suffer and the lives of train loads of people are jeopardized. The trainmen or switchmen say that the superintendent will probably "lay them off" as too old, whether presbyopic or not, if they show themselves in glasses. We should manage to convince the officials of the double folly of their ways.

Half of the clerks, stenographers, bookkeepers, etc., are compelled to carry on their work with poor lights, wrongly placed lights, etc., and when the lighting of their desk is good, the employe himself omits many other wise measures preventing eyestrain. Our school desks and commercial desks are universally flat, but when ophthalmology becomes ophthalmologic, and when civilization becomes civilized, they will be made sharply pitched. The unphysiologic, unophthalmologic, outrageously stupid writing posture of the occidental

world begets a big deal of eyestrain, and most of the lateral spinal curvature which curses 27 percent of our school children. That we look sharply downward on our writing, etc., instead of off, from, and slightly downward, that we pathogenically angle our paper, are other sources of eyestrain, which we shall long and vainly struggle to change.

There are many other occupations which variously contribute to the conditions of eyestrain.

Lastly comes the fact on which is based the whole theory of the origin of eyestrain, namely, the impossibility of the long and continuous innervation and contraction of any single muscle or set of muscles in the human body. Rhythm is the law of life, and surely of muscular contractility. The modern human eye is often put to tasks which it is incapable of carrying out. Normalized accommodation (that is, accommodation without any ametropic morbidizing), is in fact always subnormal, when it is required to be executed with scarcely a break or change for hours, almost a whole day, and for all days of the year and life. Nature never made the eye for such work, and has not outfitted it with an adequate mechanism.

EYESTRAIN AND CRIME.

CHAPTER XIX.

EYESTRAIN AND CRIME.

By the kindness of Dr. Geo. M. Case, of Elmira, New York, ophthalmologist of the Elmira State Reformatory, I epitomize from his paper read before the American Academy of Ophthalmology and Otolaryngology, August 30–31, and September 1, 1906, the following facts. The calculations are made from the diagnoses of the refraction of 400 inmates chosen as illustrative of less than 5,000 patients examined during the years of his service. The report relates to inmates with:—

Hyperopia, simple	68	
Compound hyperopic astigmatism	27	
Hyperopic astigmatism	37	
With predominant hyperopia		132
Myopia, simple	37	
Compound myopic astigmatism	19	
Myopic astigmatism	18	
With predominant myopia		74
Mixed astigmatism		7
Strabismus		10
Total with ametropia and strabismus		223

Of these the errors were corrected in	146
Uncorrected.....	77
	223

It is noteworthy that of these errors an astonishing proportion had very high degrees of ametropia, the defect in 53 cases being from 2 D. to 4 D., and in 37 cases over 4 D. In 10 cases the astigmatism was over 4 D.

It must be remembered that the rules governing these tests were such that in some ways make the results untrustworthy, but that all the conditions imposed by the State demonstrate that only the most glaring defects were brought out. As a rule no mydriatic could be used, so that these are only the manifest errors. Anisometropia and heterophoria were ordered to be ignored! Then the sole aim permitted was to give approximately normal vision in one eye only. It is, of course, well known by Dr. Case and by all competent oculists, that the ametropia which produces the most ruinous systemic reflexes is precisely that covered up by the accommodation and permitting in one or both eyes a fair or even good acuteness of 20 foot vision. This fact throws an astonishing and appalling light upon the handicap of these young criminals in attempting almost any work of civilization. If in 90 patients out of 400 the manifest errors were over 2 D., and if the manifest astigmatisms were 108, (45

over 2 D.) the argument is convincing that instead of punishing these afflicted young men, they should be rewarded by giving them accurate and scientific glasses, to enable them to make their living. The State in its infinite stupidity doubly punishes them both by imprisonment and by improper glasses. Such is governmental wisdom.

Put upon 108 out of any 400 moral and well-raised boys of 12 years of age, spectacles which would correct the ametropia of any one of these 108 boys of the reformatory, and they will either get into the reformatory, a hospital, or their graves, within a few years. Let the legislators or officers of the government read or work at any handicraft for one day with such glasses (creating the defects these boys have by nature) and there would be different laws enacted, at the next legislative sessions, and the administrators would see that they were executed. Have societies of learned ophthalmologists, have general medical societies, have penologists, asked for, or demanded laws and appropriations to give these abused boys vision and normal visual function to enable them to do work and live moral lives? The State will not only not pay the oculist, it will not let him do his work scientifically, it will not buy the glasses, it will not care to have the glasses fitted by an expert optician. What amazing blundering! It would be a money-making business if a private oculist and optician would take the job of

reducing the State appropriations for criminal institutions 50 or 75 percent, easily done by preventing the ocular diseases and reflexes which directly cause crime in the young. Write ten hours with any compound hyperopic astigmatic spectacles of one, two, or three diopter strength, and be convinced!

What does the State do? Listen again to Dr. Case:—He sent letters of inquiry to 123 penal institutions asking if visual acuteness was tested when the boy or prisoner was received; what were the results; were glasses prescribed; the effect on conduct, etc.; were oculists employed; were appropriations made for such work, etc.? Facts were so profuse, interest in the subject was so intense, and conviction so manifest, that no answers were made by 63 institutions! "No fact to report," is probably the most charitable explanation. Dr. Case avers that in some institutions big baskets of all kinds of lenses are placed before the boys, and they are ordered to choose any pair they please. Thus is the science of Donders and of great ophthalmologists made practical! Of those who could or did reply, 62 percent have no oculist and only 5 percent have even an optician; only 16 percent have any appropriation for such work whatsoever. The entire affair is a farce, an absurd bit of opera-bouffe at best, that should be laughed and buried out of the sight of self-respecting, or of business-like people.

Wherever there was any attempt to go at the sub-

ject in the most amusingly inadequate way the results on demeanor, conduct, school, or hand work, promptly showed great improvement, the percentages of such improvement ranging from 15 to 54 percent, and averaging about 40 percent. The senior physician at Elmira, Dr. Frank L. Christian, writes:—"*The general progress of the men, after receiving glasses, was greatly improved, and far better results were obtained than previously.*" And this, forget not, was after correction of manifest errors; without cycloplegia; for the purpose only of giving fair visual acuteness with one eye; muscular imbalance and astigmatism usually ignored; and differences of errors of the two eyes (anisometropia) not considered. Even under these ruinous conditions Nature responds a little, and there is a degree of betterment gained. What would be the gain if accurate and thoroughgoing work were permitted—if it were demanded! At the same time government prides itself on being a democracy, the medical profession prides itself upon being scientific, and the people pride themselves on knowing how to conduct an enterprise in a business-like manner!

THE OPHTHALMIC SINS OF HOSPITALS.

CHAPTER XX.

THE OPHTHALMIC SINS OF HOSPITALS.*

EVERY hospital in the world, in its construction, management, and medical practice, is a threefold sinner: first, against ocular hygiene; second, against local ocular therapeutics; and, third, against ocularly related therapeutics. So far as one can discern, not a protest against these abuses has ever been made by ophthalmologists, and no professional effort has been made to correct them.

In the construction of hospitals, architects, building committees, and trustees have not considered the simplest and most fundamental rules as to the influence of natural light and of artificial lighting, upon the eyes. To ventilation, heating, cleanliness, infinite care has rightly been given; concerning them wise forethought has been held necessary, and upon them millions of money expended. Some attention even to the ears and the teeth of patients is held necessary, as a boiler-making industry is not thought a wise part of hospital plans, and an aching molar in a patient is at once extracted. But as to the eyes the old medieval barbarism of utter inconsideration is perpetuated,

* *Annals of Ophthalmology*, July, 1906.

unalloyed and unholpen. It would appear as if the endowers, architects, supporters, and administrators had no conception whatever that the eyes were of value or had any relation to the rest of the patient's mind and body. Care to preserve the sick person's visual functions and organs, desire to prevent their deterioration or destruction, do not enter into the count. As to the daylight, it has often been most indiscriminatingly thought that the more light the better. This has been chiefly in the interests of cleanliness and asepsis, for, born of long experience, it has been found that where is darkness there is necessarily dirt and disease. The mistake is not unlike that which has clumsily supposed that clear water is pure water. There is no real connection between dirt and darkness except human laziness and negligence. Dirt may and often does exist unseen and in the brightest of rooms. The ideal should rather be to extinguish dirt whether in the light or the dark. But willy-nilly the patients in the wards of the hospitals as commonly constructed are usually compelled to sit in a blinding light, sometimes in the sunlight. Indiscriminate neglect of ocular hygiene is constantly and needlessly increasing the afflictions of those who suffer from weak, diseased, or ametropiç eyes, and all the systemic diseases which spring from eyestrain are intensified and multiplied by the pernicious custom. For a little time light might be allowed to flood the wards, but to insult the eyes with it all the

day long is—well, it is insulting. One may, indeed, hope that the absurd lengths of the rage for light, light, and ever more light, may soon be restricted to common sense and scientific limits. The aim should be to secure that cooling, soft, and grateful shading which normal eyes, sensitive organisms, and considerate science instinctively choose. Many hospitals are curtainless, in many the curtains are ordered rolled up all the time, and often the curtains only ludicrously increase the harmfulness of the light-beams shooting athwart the beds and chairs, or stabbing the hurt eyes of the patients who seek in vain to escape. There are a number of diseases, ocular, mental, and physical, directly engendered or increased by brilliant light.

Artificial Light at Night.—And if there were allowed the healing and soothing absence of light in the night! But no, the Societies for the Encouragement of Cruelty to Patients will not allow that, and during the whole night some wretched sort of artificial light is ordered to prevent the healing of overstimulated and injured retinal and cerebral organs. Thus amblyopia, ocular and mental, sleeplessness, brain-irritation, and other morbid processes are directly encouraged, convalescence retarded, and some types of nervous diseases directly provoked. The eye is an important organ of the body, and it has pathogenic relations with every other organ. It is worth saving for its own sake, and also for the sake of the others it may profoundly influence.

Reading in Over-lit and Badly-lit Wards.—The complete inattention to ocular hygiene in hospitals is again exemplified by the fact that reading, writing, sewing, etc., are permitted without regard to the amount or quality of the light, or at what angle it strikes upon the patient's eyes, his book, paper, etc. Often, with curtains rolled up and windows upon every side, it is impossible for the reader to sit so that it shall not strike his face or his book from all sides. Some of these evils could be much lessened by the use of reading visors, or eye-shades, but they are not ordered.

Then to make up for the overmuch and hurtful glare of the daytime lighting, patients are allowed to read at night by an artificial light so inadequate and wretched that the daytime injuries are doubled by those in the evening. In what Training-school for Nurses are taught a score of such important laws of ocular hygiene? Do resident and visiting ophthalmic surgeons teach them and see that they are carried out in their hospital wards? Never, or rarely! The nurses are trained in every other conceivable way, trained indeed, often to death, but no one teaches them to care for their own eyes, the laws of their overuse and abuse, the tremendous value of accurate and scientific refraction in carrying on their studies, in preventing ill-health, etc. Pitiful tragedies are constantly recurring because of the eyestrain which they have not been taught to avoid. If ignoring the sources of these their

own misfortunes, how can they warn and help their patients in such matters?

Sleeping in lit rooms is another method of injuring eyes. Most of the hospitals have lights in the wards so that by no device can the patient escape the more or less direct falling of light upon the eyes while sleeping. This is highly injurious to the sensibility of both the retina and brain and disturbs the refreshing sleep so needed in disease and convalescence. Many patients must sleep in the daytime also, and eyes are constantly injured by the blinding light. In nine-tenths of the sleeping rooms of private houses the bed is so placed that the sleeper faces the light of the windows. I never heard of a physician ordering a change of the position of the bed, and the prevention of ocular injury by screens, etc., is rare. The subject of the location of beds or cots in hospitals as regards the incidence of light is one sadly neglected, and oculists should make the matter clear to trustees, superintendents, etc. The eye is a part of the human body, and too much light, and indiscriminate light, is as bad as too little. Light is for judicious use, as is any other therapeutic measure. Darkness during sleep is a requisite of good hygiene and sound therapeutics.

The hygienic use of spectacles is also absolutely ignored. If the individual patient should possibly ask to have his eyes examined by a refractionist, several things would probably happen: 1. He would be care-

lessly referred to the eye department, if such a department existed. But in many no such department exists, and hence it is next to impossible for the patient to get a prescription for glasses. If there is an eye department, the refraction is done by students and inexperts, and the prescription will not be correct. I have never known of a case (and I have examined a thousand such spectacles), in which correct refraction was done in a hospital. Suppose that the patient secures a prescription, he has to go "down town" to get it filled by the optician. Ten to one he will fall into the hands of a bungler or a quack optician (taking the country and world over) who will charge twice as much as is honest, and who is, moreover, wholly incapable of accurately fitting and adjusting the frames. Five or ten to one, also, the patient is too poor to buy spectacles. Of the millions of money wasted in charity none thinks of the crying need of scientific spectacles by poor people.

But again the odds are great that no patient will himself spontaneously ask for glasses. He does not know or care about the matter, or is deterred by the difficulties of getting the lenses. And surely never did visiting or resident physicians tell him that, 50 to 1, he needs glasses for his eyes' sake or for the sake of his general health. Do not Doctors Roosa, Knapp, Howe, Dana, Fisher, etc.—"all honorable men"—publicly aver that eyestrain does not and cannot reflexly cause any local or general systemic disease? The "New

Ophthalmology" has no converts among the "Ophthalmic Surgeons," the professors, the visiting and resident physicians, who are placed in charge of hospitals, and hospital wards.

Spectacles as therapeutic agents would be the last thing ordered by physicians in charge of hospital patients, or of convalescents from other diseases than ocular ones. These patients afflicted with "neurasthenia," "hysteria," headache, sickheadache, diseases of digestion and nutrition, chorea, epilepsy, etc.—all possibly or usually due to eyestrain—are allowed to read, write, play games, etc., with no thought of glasses, and thus are produced or reproduced the very morbid symptoms for the cure of which they may have come to the hospital! A great authority in diagnosis, a general physician of national and international reputation, has recently said that practically every physician has seen many patients cured of gastric and intestinal diseases solely by means of scientific relief of eyestrain. Is there a hospital in the world in which patients with these diseases are treated by means of spectacles? Not one, and not a textbook on these diseases, except one, even mentions this fact or method of treatment. A surgeon of as great renown says that in pelvic diseases, appendicitis, etc., threatened operations are avoided and his most brilliant cures effected by means of the oculist. Is there a surgical hospital ward or operating room in the world in which this suggestion is heeded?

Hundreds of testimonials exist, made by careful physicians, that many diseases of the nervous system and mind are due to eyestrain. Is there a hospital, or home, or colony, in the world in which patients with these diseases, by order of the physicians in charge, are correctly refracted, properly "glassed," and the effects noted? Is there a textbook on nervous and mental diseases which emphasizes or even alludes to the fact? The dependence of diseases of women upon eyestrain has often and frequently been shown. Is there a gynecologist, a special hospital ward, or a textbook on diseases of women, in which delayed menophania, dysmenorrhea, functional ovarian or uterine diseases, are treated by attention to eyes? The question would make the gynecologist smile with derision.

Such facts illustrate the old and wellknown truth that the official "science" of the present date is never "up to date," and is usually an outlived science. Corporate therapeutics is either obsolete or obsolescent therapeutics. The medicine that is most authoritative is too commonly of no authority, and of little efficiency. Except in the chronic and organic diseases, in which death may possibly be delayed, the hospitals, especially in diseases dependent upon eyestrain, are not preventive and too seldom curative. Frequently, indeed, they add to ills of which the patients already had enough.

One of the greatest of scientists and educators has said that "the nervous system of man and animals is

primarily a device for making locomotion safe. The sensory organs are the brain's sole teachers; the muscles are its only servants. By far the most important sensory organ is the eye." The logic is inevitable and the conclusion for scientific men, draws itself. The greatest physiologic and biologic functions when made morbid must become equally powerful sources of suffering. Medicine is the pathologic side of biology. Must it be left to lay scientists, and the nonmedical, to force that biologic verity upon professional attention and professional practice? The effectiveness of our hospitals as social institutions for the betterment and saving of human life depends infinitely more than has been acknowledged upon the recognition of the truths of "the new ophthalmology."

TEN TYPES OF OPHTHALMIC CHARLATANISM.

CHAPTER XXI.

TEN TYPES OF OPHTHALMIC CHARLATANISM.*

1. *The Confidence-man as Spectacle Peddler.*—For a number of years bands of criminals have been "working" the smaller cities, villages, and country districts, within a radius of several hundred miles of Philadelphia, in the following way: They generally go, two or three together, the accomplices staying in the background to receive stolen goods, money, or to help in any way. The chief has great skill in posing as the son of some wellknown Philadelphia oculist, or as the physician sent by Wills' Hospital to see and treat the victim. Poor, half-blind, trustful people are duped, and on one pretence or another are wheedled or forced into paying absurd sums of money for a worthless pair of spectacles, or for a prescription. Money, watches, jewelry, etc., are then stolen and the jailbirds disappear. I have many times through the police come near catching one of these scamps who for years has posed as my son, and has cheated people out of sums ranging from a few dollars to one hundred dollars. His cunning and elusiveness are almost admirable.

* From the *Cleveland Medical Journal*, December, 1906.

2. *The surgical criminal* I have heard about several times, and he also escaped me twice the last summer. He is "sent by some distant friend to take the cataracts off his friend's eyes." He will do it for as little as he must, as much as he may get. From poor farmer-folk he usually secures from 10 to 25 dollars. His outfit is some irritating powder or dust, a pair of little forceps, and a piece of leather about one-fourth of an inch in diameter. After getting his fee, he pinches the patient's lids or conjunctiva enough to make a profound impression; he then fillips some powder into the eye, and dextrously shows the "cataract" to the family—and disappears.

3. *The itinerant "Professor" or "Scientific Optician"* heralded by handbills, and stopping for a few days at ——— Hotel, "examines eyes free", and sells a pair of miraculous spectacles costing a few cents, for as many dollars as the gullibility of the trustful will permit. He "grinds his own lenses"; he talks grandiloquently; if this pair does not do all he swears they will do, he guarantees satisfaction gratis at his next regular visit. He has ophthalmometers, gives the name and address of his city headquarters, etc. There are many grades and variants in this class ranging from the agent of obscure or wellknown optical houses in the cities, to the spectacle and eye-glass vendors who sell "crystal" and magical lenses of miraculous powers.

4. *The itinerant ophthalmologist, with a real medical*

diploma, chooses smaller cities as his hunting grounds. He has knowledge sufficient to play the scientific and optical game to perfection, and his instruments, pictures, and free lectures, are so adroitly chosen and managed as to deceive all but the really expert. But he has no more conscience than his brethren of types 1, 2, and 3. He is after big game. He operates for any and all surgical diseases, but tenotomy, of course, for heterophoria is his chief reliance. One succeeded recently in getting several thousand dollars out of one family before the mental eyes of the principal patient were opened to the character of the fraud.

5. *The jeweler optician of the village or small city* will also "examine eyes free", and "fit glasses". Of course he does not "examine eyes", or diagnose refractive errors correctly; generally he does not "fit glasses" optically or as a good optician should fit them. Never did one prescribe such lenses as would in the young stop eyestrain reflexes. Most of them are commercially honest, and sell glasses only because their rivals do. Frequently they are as accurate in their refractions, and as skilful in a medical sense, as the professor of ophthalmology in the neighboring medical college, or as the famous oculist of the place. This is because the Professor does not himself use a cycloplegic, refracts, if at all, with the ophthalmoscope or the ophthalmometer only, "cures by taking glasses off", and spends his leisure in concealed advertising,

and in ridiculing "hobby-riding refraction cranks". The village optician is the least criticizable of the ten, except the first two or three. He sometimes helps a poor presbyope a little; he sometimes recommends an eyestrain sufferer to a good oculist; sometimes he has been known to smile and wink at his own ophthalmometer—a thing Professor Big Wig would not be caught doing; one or two can really adjust a pair of spectacles pretty well.

In view of the fact that there are millions of farmer and village folk in this country absolutely prevented from visiting the city oculist, and further that if they should sacrifice their savings of a year or of years to do so they might fall into the hands of the charlatan refractionist of the city, I think the better class of the more conscientious jeweler opticians have their use. Their function will last until ten thousand capable physician refractionists find their work in the remote country districts, and until the city refractionists secure the requisite consciences and skill. In the meantime, not only permitted but encouraged by professional neglect and prejudice, these lay refractionists will so entrench themselves behind laws and in the public confidence that the M.D. refractionists will by and by have to struggle for a lifetime for their proper and professional places. In the meantime, too, thousands of eyes will be ruined because of the optician's want of medical knowledge. In the third meantime that bitter but

actual truth will grow in vogue that the people will believe any thing and trust anybody which the profession hates.

6. *The "Doctor of Optics", "Graduate Optician", "Ophthalmoneurologist", "Doctor of Refraction", "Ophthalmotrician"*, or whatever other title he may assume, is another product of the neglect and quackery of the medical profession. He, too, worships the ophthalmometer, pretends to refract without a mydriatic, etc. But he does not go to the extreme of poohpoohing eyestrain reflexes, and so does not harm his patients as much as do the tenotomomaniacs, and some of the most respectable city Professors and Surgeons, who scorn the refractionist. Indeed, as the "graduate optician, etc.," sometimes does relieve eyestrain, as he almost always sincerely *tries* to do so, he often does succeed more accurately than the others in prescribing for eyestrain. Right desire often ends in ability. He, therefore, emphasizes the role of eyestrain in producing systemic diseases, because he has often cured in such cases. He will, therefore, do more good than the dignified poohpooher who with degrees and professorships ignores refraction, misdoes it, and uses his office as a sort of surgical sand-screen. Like all refracting opticians, he really assumes the physician's office. But, as we all know, the knowledge and the function of the two professions are different, and no one person can have or fill both.

7. *The department store opticians, and city eyes-examined-free opticians* are a "pretty bad lot", because they pretend to give some things with the lenses they sell which they know they do not give, and the chief thing they do pretend to give they know is not supplied. They claim to give correct refraction, and also a mysteriously incorporated medical quality or diagnosis. Of course, as regards physiologic optics their glasses are always and without exception wrong, and so far as ocular pathology is concerned, only a minority of their dupes are deceived. The one thing which as opticians they should supply, correctly fashioned and rightly adjusted spectacles and eye-glasses, these, absolutely are not to be had of the eyes-examined-free optician. Money-making regardless, is the sole justification of these frauds. Not a man of them, in cities where medical men aplenty exist, should be thus allowed to trifle with the vision, health, and lives of the people. No person should wear a pair of lenses without the diagnosis and prescription of a medical man. The physician oculists may be wrong, in some cities they may generally be as bunglesome and commercial as the optician, but it is only the M.D. degree which can be held responsible for ruinous blunders; and only that degree insures that glaucoma, and a score of other diseases, may not be mistreated by glasses alone; and only that degree gives promise that we may finally elevate ourselves out of the thousandfold ophthal-

mic diabolism of the present time to some sort of an ophthalmic civilization. The optician who never sells a pair of lenses without a physician's prescription makes and fits glasses correctly. He is an honorable and deservedly successful business man, and he and his expert calling are bound to grow in honor and dignity. If city physicians would absolutely forbid their patients to go to the hypocrites who play them false by double-dealing there would be a more speedy end of our ophthalmic barbarism. It is as absurd, even more so, as allowing patients to go to patent medicine drug-stores with our prescriptions of drugs. The interests of the community are clearly against both practices.

8. *The Physician Turned Quack in Partnership with the Opticians.*—Many of the eyes-examined-free department stores and city opticians have a "physician in attendance". Some of these "physicians", "Oculist-doctors", "M. D. ophthalmologists", etc., have secretly or openly become hired attendants of their commercial masters, selling their little or their sham medical ability (wholly without medical value, of course), like Keely Cure or Oppenheimer physicians, to the highest bidder. A large number are the servants of lay "Optical Schools", "Refraction Colleges", "Ophthalmoneural Institutes", "Ophthalmic-doctor" degree-sellers, and all the sorry rest. One, well-known, is busily engaged teaching ignorant mechanics, workmen, errand-boys, etc., by lectures and private

instruction nights and Sundays, to become "expert refractionists". And these fellows are allowed to retain their degrees, and to belong, not only to the medical profession, but to medical societies, and associations. This sort of professional parasitism must also be met some time, met and conquered, when we secure organization and when organization gets a conscience.

9. *The tenotomomaniac* who operates on the eye-muscles for Morton's toe, rheumatoid arthritis, phlebitis, choroiditis, for all reflex ocular neuroses, for all diseases, for anything you please, is a remarkable product of our time and conditions. For snipping a tendon (or the conjunctiva) he secures several hundred dollars, and for doing it on the same patient a score or more times he charges several thousand dollars. He operates on every patient that enters his office, and no one knows whether the operation is on the tendon or upon the conjunctiva only. One thing is certain:—a tremendous effect is made upon the patient, his friends, and upon pocket-books. Usually one operation suffices to scare the eye or the patient into non-complaint or silence. If the subsequent result is good it comes through the correction of the ametropia by means of glasses prescribed soon after the operation. First, the fee; second, the operation; third, refract; fourth, credit the cure to the operation. From a careful physician in a distant state, I have just received the following letter:

Dr. ———, in this town, a specialist in eye diseases, a pleasant man personally, but curiously constituted mentally, so far as his fellow practitioners is concerned, has for some years made, as people call it, a specialty of the eye-muscles, and, when he finds imbalances, which he *finds in a great many cases*, he sends them to Dr. ——— for operation. He claims that Dr. ——— is poor and has never made over ten thousand a year. He has gone farther than that and got another tenotomist into this state as a licensed practitioner and that man comes here every summer and operates indiscriminately on cases Dr. ——— has reserved for him during the winter. This past summer he has been here and as I hear performed some 70 operations, most of them without much benefit. Now what shall be done about this charlatanism? How can it be stopped? I hear that this man does not pretend to test the refraction at all, *until* he has done the operation for the fee. I now have in my office an instance which passes comprehension had I not seen it. A woman of 55 had retinitis with choroiditis and small retinal hemorrhages resulting in metamorphopsia; O. D. light perception only; O. S. H. with Ast. He fitted her to lens O. S. getting 0.7 V.; O. D. he did his best getting 0.2 and then claiming that she had exophoria he operated on both eyes twice with no benefit to the exophoria, nor, of course, improvement to vision of O. D. with its hemorrhages and chorioretinitis. Now why on earth any decent man would operate on muscles to cure or relieve intense photophobia resulting from chorioretinitis, passes my ideas of medical honesty. The condition is due to cardiac disease or an old traumatism of the skull. This is indeed muscle-snipping with a vengeance, is it not?

In the same mail I receive a letter from a critic who urges that the profession must be united against ophthalmic quacks outside of the profession. I answer that this is a most desirable thing, and that I have urged

it every year, in season and out of season, for all the years of my life as an oculist. But I add the query: What about the quacks within the profession; shall they be asked to join in the crusade against those outside? Our own little Augean Stable is pretty mirey. Do we care less for the mire than we do for getting the professional stabling? Good medicine as well as cunning astuteness would appear to counsel the cleaning of the professional stables. The scientific blunder which explains the vogue of the tenotomomaniac is the non-recognition of the truth that heterophoria is primarily and almost always the result of uncorrected and malcorrected ametropia. Prevent it, eyestrain and the heterophoria is prevented. Neutralize the eyestrain of ametropia and tenotomy is unnecessary. Surgicalizing the effect does not cure the cause. The addition of quackery to the surgery scarcely lessens the evil-doing.

10. *The ophthalmic success-hunters, professional judges, consultation-seekers, chairmanship-stalkers, presidency-getters, self-appointed leaders, ring-leaders, etc.*, are as pernicious sources of evil and professional disgrace as are any of the other kinds of ophthalmic charlatans. They flatter every prejudice of their colleagues who send them patients; they frown down all unfashionable truth; they deny every innovation except that one (true or false) which will heighten their fame in the eyes of those upon whose favor their success depends. Far from them to admit or speak

favorably of "the eyestrain hobby-rider" and his foibles, because the referers of patients must themselves be allowed to cure the patients of these diseases. Their offices, therefore, become merely sand-screens for sorting out the surgical practice which makes money and fame. However small a part surgery is of the true oculist's work it gives the glamor of success. Refraction, the prevention and cure of systemic diseases by means of glasses, is infinitely difficult and expert work, requires high powers of mind, and yields comparatively little income. The logic is absolute. The overwhelming testimony as to the awful role played by eyestrain in the production of human diseases and life-wreckage must be ignored and gibed at. And these are they which would unite to crush the poor opticians, and the eyes-examined-free men. Who turned the jewelers into opticians, and who created the department store opticians? Plainly and bluntly, it is official ophthalmology which for thirty years or more has ignored the overwhelming testimony of good medical men as to the role of eyestrain. The question of blameworthiness depends upon motive and scientific-mindedness. Some may be in part excusable because of the possession of unscientific-mindedness, crudeness of judgment, or as the theologians would say, of "invincible ignorance". In the last analysis ignorance and prejudice, when persistent, in supposed scientists, are proofs of unscience and charlatanism. But many are cunning

Mephistopheles and far more ambitious. Some are arrant scoundrels.

At all events they are few, and the great tide of professional opinion is drowning them in oblivion. The mass of oculists are turning their minds to the astounding value of scientific refraction, and everywhere they are spreading to the smaller cities and towns; and they are reporting the good results of their good work. Ten thousand more are needed. The fateful misfortune is that nowhere is it possible to get adequate instruction in this the most difficult and delicate of all arts and sciences. We are blundering, the best and worst of us, and stumbling toward accuracy through pitiful errors and the unnecessary sufferings of many millions of our people. The general practitioners, and especially those of the country and towns, are alive to the reach of the new truth, but the leaders of the cities do not lead, far from it; and with few exceptions the neurologists, gastrologists, gynecologists, and even the surgeons are as hopelessly impenetrable as the antiquated professors of ophthalmology, and the sly hunters after success.

A CONSPIRACY OF SILENCE.

CHAPTER XXII.

A CONSPIRACY OF SILENCE.

For hundreds of years those who discovered or advocated unfashionable scientific truths have found the doors of the ordinary and official journals of publication closed against them. When one or more members of learned medical and scientific societies held views contrary to those of the "majority", "leading", or "ruling" members, the unpopular opinion was frowned down, and a paper, if one dared to offer or to read it to the society, was refused publication in the official Transactions or Reports. So full is the history of Science and Medicine of this procedure, and so well known is the story that the hundred illustrations need not even be noted in order to exhibit the unfortunate and ludicrous psychologic habit.

But what is more strange is the naive faith of many that nowadays in medicine such a condition of mind has been long outlived; that it was one of those quaint ways of primitive kinds of men, dodoish and dinosaur-like beings long extinct; that such things could not persist into an age when a thousand medical journals and science, and freedom from prejudices and grudges no longer allow them vogue. Alas that the simple

confidence must be aroused to a recognition that civilization makes the domination of the *Zeitgeist* and the conspiracies of silence not less but more powerful, not more doubtful and more easily detected but far more profound and effective. How many protests have been thus stifled in the past, and are today being snuffed out, none may guess. Certain it is that many independent minds and many discoverers have been thus beaten or ignored into a silence which has cost the progress of humanity most heavily. Power and prejudice firmly intrenched in the multifold emoluments and rewards of office never give up their undeserved benefits without exhausting every device which ingenuity and selfishness may imagine.

In one department of medicine the method of ignoring a discovery to death, and of refusing a public discussion of profoundly important truth is being actively carried on in the years of our Lord 1905, and 1906. The facts are that by the control which a few men have of a number of medical journals they have reached a common understanding and decision that no adequate presentation of theories of the reflex influences and results of eyestrain upon the general system shall be discussed. The articles of those advocating these theories are refused publication. Facts have recently come to my knowledge demonstrating this domination of editorial policy. Numerous correspondents tell me of the refusal of editors, upon one pretext or another,

to accept or publish their articles in advocacy of the clinical dependence of systemic diseases upon eye-strain. The real reasons for the refusal are, of course, not given; the desire, for instance, long denied, of editors for membership in select medical societies, for professorships, chairmanships, presidencies, etc., is concealed under the amusing euphuism, "The publication of the article is not for the interests of our journal."

I am not at liberty to speak for my correspondents even if I wished to do so, but for myself I shall briefly epitomize some personal experiences. The articles by myself thus refused publication are all contained in this volume.

The editor of one large weekly journal in refusing one paper wrote, frankly, "I dare not publish it! If I should, both myself and my publishers would be punished beyond endurance."

The editor of *The Transactions of the American Ophthalmological Society* gave no other reason for refusing a paper read before the society by a member than that the Committee on Publication had decided not to allow it to be published. How many other contributions by members have thus been put to death by the conspiracy of silence in the 30 or 40 years of the society's life could only be learned from the secret archives of its Star Chamber. Certainly a score of members, believing earnestly in the clinical demon-

strations of the theory in question have not been allowed or have not chosen to put themselves on record in the matter.

The editor of *Ophthalmology* accepted one of my papers, promised its publication in a certain issue, put it in type, then returned the paper to me saying it was "not in the interests of the periodical to publish the article." The hand and influence that ruled the editor was mistakenly supposed to be concealed.

A paper was accepted by the editor and publisher of the *Annals of Ophthalmology*, and its publication in the October issue was promised. In the meantime came a change in editorship and the new editor refuses to carry out the agreement of his predecessor—even with a note expressing his irresponsibility.

To numerous examples might be added the continuance of the ancient custom of utterly ignoring the hundreds of testimonies and contributions made by reputable physicians as to the truth of the eyestrain theory in the epitomes and textbooks of medical progress. One of the most flagrant instances of this is Dr. Casey A. Wood's epitome of ophthalmologic progress in 1906, in which there is not a word of reference to eyestrain or to a hundred articles on eyestrain and its systemic effects. What an exhibition of editorial function!

The glaring injustice, illiteracy, and conscious intimidation is an amazing example of the lengths to which

the editors and epitomizers will go in the support of prejudices and of other evident motives which only the fearless would dare set forth.

There are many secondary results of the denial of open trial which are as bad as the chief ones. As the flatterers of the surgical oculists are promoted by the leaders to all places of power and success-getting, so the refractionists are excluded, sneered at, and by fair means or foul are kept from practice, if possible; their patients stolen from them, societies, social and medical, turned against them, and all the rest. Their literary or medical work is depreciated, sniffed at, ignored, and those wonderful beings, the medical advisers of the newspaper editors, ply their mysterious arts in secret. As the lay editors are often more open-minded and broad minded than the medical journal editors, strange complications arise. For instance, the intimidated are besought with big checks and with visions of boundless success in private practice to desert the (very irregular) regular profession. Nothing pleases the intimidators better than when the weak succumb, and go into lay journalism and quackery outside the profession. The number of "Optical Schools," "Ophthalmic Institutes," traveling ophthalmologists, and eye-examined-free opticians, with or without degrees, is doubling every year, and just now by leaps and bounds. Every intimidator and scorner of "eyestrain hobby-riders" is the first parent of these quacks. Good

scientists, bad scientists, and even Christian scientists, who desert ethical medicine, are the children of the quack professional leaders who "cure by taking glasses off" and who make *ophthalmology* synonymous with *surgery*. Both types are pseudoprofessional, indifferent to the woes of the patient-world, careless of the paramount duty to prevent the needless sufferings of millions who require scientific correction of ametropia to make them healthy.

The remedy of the abuse consists in a professional awakening to its extent, a nonsupport of the sinning editors and intimidators, and the giving of subscriptions to those journals and textbook makers only who hold to the truly scientific and genuinely American spirit of fair play, and who desire to cure patients of their diseases by all honorable and unselfish methods. Our duty is not to feed the ambitions and successes of certain "leaders" who have built their practices upon the illiberal and decayed habits of long outworn prejudices and limitations. Our duty is to bring to each patient every reasonable method and possibility of cure of the grievous ills, up to now of confessedly unknown origin and nature. The testimony that a vast number of these systemic diseases are often of ocular origin, and easily preventable and curable, is so overwhelming that any conspiracy of silence as to the fact henceforth becomes inexcusable and intolerable.

A HISTORIC PARALLEL.

CHAPTER XXIII.

A HISTORIC PARALLEL.*

"Most of the profession interested, a few individuals not representative."

In great medical reforms or discoveries the socalled leaders not only do not lead, but they succeed, for a time, in ignoring or opposing to such a degree that for years or a generation the unnecessary suffering or high deathrate is not lessened. Any one of a hundred might be chosen, but especially illustrative is "The Story of My Life," by Dr. J. Marion Sims, from which I quote:

"As soon as the doctors had learned what they wanted of me, they dropped me. As soon as they had learned how to perform these operations successfully in the New York Hospital and elsewhere they had no further use for me. My thunder had been stolen and I was left without any resources whatever."

"I had gone to that lecture-room with vindictiveness toward the medical profession. I now saw that most of the profession were interested in what I had to say, and, that a few individuals did not represent its public opinion."

"You have nothing to hope from the doctors, or from the profession, or from anybody, but by appeal to the heads and the hearts of intelligent women."—(*Mr. Stuart to J.M.S.*)

"I find in the medical profession here such a degree of univer-

* *Bulletin American Academy of Medicine*, October, 1906.

sal opposition to you and your enterprise, that I am sorry to say that I cannot now give you the privilege or opportunity of addressing the profession under my auspices."—(*Dr. Stevens to J.M.S.*)

"All together, I was near going into an insane asylum as a man ever was, and not go there."

"No, Mr. Beattie, there isn't a particle of political sentiment in it; it is only that I do not belong to any dominant clique in the medical profession in New York. I am alone, and solitary, etc,"

"The Woman's Hospital, from the day it was opened, had no friends among the leaders—among hospital men. I was called a quack and a humbug, and the hospital pronounced a fraud."

"How are we to live till I can get properly at work. I have but two dollars; * * * my clothes are not good enough to make the appearance that I ought. * * * I feel a power within me that is irresistible. I feel that I am in the hands of God, that I have a high and holy mission to perform, etc."

"Dr. Delafield had lost interest in the institution when he could not control it, and put his own 'tools' in the place to run it."

(Finally, the trustees compelled him, for the sake of his own self-respect, and of preserving a teaching institution, to resign his position, and leave the hospital he had, with such splendid success, created.)

"When I look into my heart I do not see that my motives are at all selfish. The only selfishness that I feel is the desire to do good, to be a benefactor of my race, and I sincerely pray that my labors may be blessed, so far as they tend to relieve suffering humanity, to advance the cause of science, and to elevate the condition of the medical profession. You can understand me. The world may not. It is a glorious thing to feel that you are above the dross and glitter of mere pageantry. Money is trash and may be blown away by the wind. Honors are evanescent and may be snatched by another. Even reputation may be tarnished by the slanderous tongue of an envious villain, but the proud con-

sciousness of rectitude, coupled with true benevolence, lives in the heart of its possessor, and is as immortal as the soul itself."

Those who today in reference to other medical discoveries and reforms represent the Stevenses, Delafields, Motts, and their friends, of the time of Sims, would say, for example in reference to "this eyestrain exaggeration:"

"All this is a very different matter!"

Yes, it is, in truth very different, and yet it is not so different. As Karr would have said, *plus ça change plus c'est la même chose:*

The Discoveries and Causes of Sims Related:	*Those of the Refractionists of Today Relate:*
To the diseases of a few people in a limited specialty of medicine.	Directly to many of the diseases of the entire body and indirectly to those of many special organs.
To surgical, organic, or macroscopic diseases, always dramatic and convincing even to crude minds.	To functional diseases of obscure and mysterious origin, which crude minds can know little or nothing about.
To one charity in one city.	To all charities in all cities.

To a few women in one city.	To a large proportion of all women, everywhere, and of men only somewhat less.
To the cure of a few individuals.	To the prevention of disease in millions, and for all coming time.
To the furtherance of the legitimate ambition of a single surgeon.	To the advantage of thousands of physicians.
To the testimony of one man, in one year as regards a medical reform.	To the testimony of hundreds for 34 years.
To the great "Father of Gynecology."	To obscure and ridiculous oculists, "with axes to grind" (*Sachs*), who have "a minor psychosis of glassing" (*Dana*). But Delafield, Mott, Stevens, etc., said Sims was "a quack and a humbug, and pronounced the hospital a fraud."

To a poverty stricken ambitious man, seeking for work to do, and an opportunity to do it.	To the modern refractionists (who have more practice than they know what to do with).
To Sims who was filled with a scientific zeal and lofty unselfishness for a great cause.	To men without such qualities, "paranoiacs," etc. (But what did the spiritual fathers of the present-day ignorers and haters of refractionists say of Sims?)
To a lost cause (until the tide turned and it was cunning policy to aid the victorious side).	To a lost cause (until the tide shall turn, and it becomes shrewd self-interest to be on the winning side).
To "the Great Sims," "the Father of Gynecology," etc. (when he won his fight against them. But did they ever acknowledge their criminal blunder?)	To those who say: "We always believed this and practised it" (when it shall be policy to say so, "when the tide turns." But will there be any acknowledgment of the criminal blunder? Surely not by those who have placed themselves on record).

And the tide has turned! The profession is interested in what the refractionists have to say, and a few individuals do not represent professional opinion. *Haec fabula docet* many things, but one of these many things is surely: All this is not a different matter at all. Essentially the same spirit that dominated Stevens, Mott, Delafield, and the rest, still rules those opposing the eyestrain reform. And the motives of the advocates of that reform are today as noble and their methods as scientific as were those of Sims. *Mutato nomine, de te fabula narratur!*

INDEX.

Accommodation, subnormal, and eyestrain 309
undeveloped, and incurable eyestrain. 330
Advertising, scientific, optician 362
Age and suicide rate 195, 214
Albinism and eyestrain 318
A life and career blighted by ignored eyestrain 49
Amblyopia 29
and incurable eyestrain 328
the effect of uncorrected ametropia 27
American Ophthalmological Society, its contributions to ophthalmology in 31 years 233
Ametropia and civilization 12
high degrees of, and incurable eyestrain 319
is not organic disease 260
the cause of strabismus 78
uncorrected, the cause of amblyopia 27
Appendicitis and eyestrain 177
simulated by eyestrain 129
Artificial light in hospitals 351
Astigmatism and head-tilting 42

Biology and ophthalmology 11
and suicide 184
Blind, supposably, partial sight in 329

Cataract and eyestrain 327
Causes of incurable eyestrain 317
Cerebral disease and eyestrain 333
Charlatanism, ophthalmic, ten types of 361
Children, suicides among 219
Cities and suicide 190, 211

Civilization and ametropia 12
and suicide 187, 210
Classifications of the causes of suicide 197
Clinical suggestions with regard to suicide 222
Colds and eyestrain 87
Confidence-man, the, as spectacle-peddler 361
Conspiracy of silence 375
Constipation variously treated 83
Consultants and eyestrain theory 273
Contents vii
Contributions to ophthalmology by the American Ophthalmological Society in 31 years 233
Country life and suicide 190
Crime and eyestrain 341
Curvature of spine (see also scoliosis and spinal curvature)
ocular factors in causation 33

Dextrality 25
eye defects, and scoliosis 39
Dextrocularity and eyestrain 58
and spinal curvature 25
demonstration of 25
dextromanularity, and eyestrain 332
Diagnosis, accurate, needful 19
errors in 142
Digestive organs, eyestrain as a cause of diseases of 257
Dilation of pupil in eyestrain 91
Diplopia and eyestrain 54
Disease and suicide 189
"typical" cases of 282
Diseases caused by eyestrain and suicide 207
Drug-habits and eyestrain 103
Drug-taking and suicide 201
Duty of ophthalmology 11
Dysmenorrhea and eyestrain 167
Dyspepsia, eyestrain, and nostrum traffic 270

Education and suicide rate 195
Emmetropia, nonexistence of 13
Epilepsy and scoliosis 154
simulated by eyestrain 130
Erotomania and eyestrain 103, 104
Errors in diagnosis and treatment 142
Etymology of migraine, megrim, hemicrania, etc. 281
Evolution and suicide 184
Examinations, periodic, necessity for 16
Extraocular disease and eyestrain 241
Eye-defects and spinal curvature 33
dextrality, and scoliosis 39
Eyes, unhygienic use of, and eyestrain 335
Eyestrain a cause of cataract 327
a cause of diseases of the digestive organs 257
and albinism 318
and appendicitis 177
and cerebral disease 333
and colds 87
and colobomas 318
and crime 341
and dextrocularity 24, 58
and dextrocularity and dextromanuality 332
and dilation of pupil 91
and diplopia 54
and drug habits 103
and dysmenorrhea 167
and erotomania. 103, 104
and extraocular disease 241
and functional disorders 17
and gynecology 235
and headache 67
and high degrees of ametropia 319
and hyperchlorhydria 133
and hysteria 165
and indigestion 67, 132

Eyestrain and insomnia 67, 87, 103
and low errors of refraction 243
and migraine 173
and nerve disease 333
and neuralgia 104, 165, 176
and neurasthenia 115
and photophobia 92
and presbyopia 78
and ptosis 56
and rheumatism 176
and rhythm of muscle contraction 337
and scoliosis 150, 168, 250
and sinking spells 173
and stercoraceous vomiting 149
and strabismus 67
and subnormal accommodation 108, 309
and suicide 207
and tinnitus 67, 70
and too constant innervation 337
and torticollis and spinal curvature 35
and unhygienic use of the eyes 335
and uterine disease 176
and uterine retroversion 115
and vomiting 173
dyspepsia, and nostrum traffic 270
ignored, blights of life and career 49
ignored by gastrologists 138
incurable 315
and accommodationlessness 330
and amblyopia 328
and diseases of the general system 335
and heterophoria 331
and high degrees of ametropia 319
and inflammations and traumatisms 323
due to congenital defects 317
in textbooks 262

Eyestrain simulating appendicitis 129
simulating epilepsy 130
the cause of heterophoria 98
the cause of iridoplegia 50
theory and general practitioner 248
theory and neurologists 286
theory and oculists 275
theory and politics 276
the result of errors of refraction 22
treated by resection of nerves 101
walking cure for 77

Financial obligations of physicians to patients 140
Functional disorders and eyestrain 17

Gastrologists ignore eyestrain 138
Generalization a bar to medical progress 152
Gynecology and eyestrain progress 235

Headache and eyestrain 67
and migraine 283
and suicide 208
Head-tilting and astigmatism 42
cured by glasses 45
Hemicrania, etymology of 281
Heterophoria 20
and incurable eyestrain 331
due to eyestrain 98
Historic parallel 383
History-taking, careful, prerequisite to cure 96
Hobby-riders, papers by, rejected 274
Hospitals, artificial lighting of 351
natural lighting of 349
the ophthalmic sins of 349
Hyperchlorhydria and eyestrain 83, 133
"Hyperchlorhydria," indigestion, constipation, etc., as treated by one gastrologist, three general physicians, one "mechano-

neuralist," one hospital, one professor of medicine, and one refractionist 83
Hysteria and eyestrain 165

Incurable eyestrain 315
Indigestion and eyestrain 67, 83, 132
Influence of dextrocularity on eyestrain 24
of marriage on suicide 194
Innervation, too contant, and eyestrain 337
Insanity and suicide 188
Insomnia and eyestrain 67, 87, 103
Iridoplegia the result of eyestrain 50
Itinerant ophthalmic professor 362

Jeweler opticians of small cities and towns 363

Lighting, artificial, of hospitals 351
natural, of hospitals 349
Locomotion and vision, relation of 11

Marriage, influence of, upon suicide rate 194
Medical ophthalmologist, itinerant 362
progress barred by bad generalizations 152
Megrim, etymology of 281
Migraine and eyestrain 173
and headache 283
and nausea 284
and psychic and nervous symptoms 284
and scotoma scintillans 283
and suicide 208
etymology of 281
ocular origin of 281
periodicity of 283
symptom-complex of 283
Minority beliefs must be officially recognized 375
Mysteries and sources of suicide 183

Nausea and migraine 284

Nerve disease and eyestrain 333
Nerves resected for eyestrain 101
Nervous symptoms and migraine 284
Neuralgia and eyestrain 104, 165, 176
Neurasthenia and eyestrain 115
"Neurasthenia" as treated by two general physicians, one homeopathist, one quack, one osteopath, one pregnancy, three ophthalmic surgeons, two gynecologists, one diagnostician, one neurologist, one resident sanitarium physician, and one refractionist 115
Neurologists and eyestrain theory 286
Nil desperandum as an article of the refractionist's materia medica, 91
Nostrums, dyspepsia, and eyestrain 270

Occupation and suicide 192, 211
unhygienic, and eyestrain 335
Ocular defects in causation of scoliosis 33
factors in the etiology of spinal curvatures 33
origin of "migraine" 281
Oculists and eyestrain theory 275
Official ignoring of minority beliefs 375
One patient's experience with two general physicians, one neurologist, one leading physician, one gastrologist, two ophthalmic surgeons, one diagnostician, and one refractionist . . 129
Ophthalmic charlatanism, ten types of 361
criminal, the surgical 362
practice, not surgical 239
"professor," the itinerant 362
sins of hospitals 349
success and degree hunters 370
Ophthalmologist, genuine, itinerant 362
Ophthalmology and biology 11
duty of 11
ignoring true pathology 14
old, and sociology 14
the true, is prevention 28

Ophthalmoneurologist 365
Ophthalmotrician 365
Optician, "eyes-examined-free" 366
graduate 365
jeweler, of small towns 363
necessity for good work by 157
of department stores 366
partner with physician quack 367
"scientific," the advertising 362
Optics, doctor of 365
Organic disease of functional origin 40
Origin, ocular, of "migraine" 281

Papers by hobby-riders rejected 274
Parallel, a historic 383
Pathology, true, ignored by ophthalmology 14
Patient is individual, not clinical material only 97
Periodicity of examinations necessary 16
of migraine 283
Photophobia and eyestrain 92
Physician, quack and partner with optician 367
Physicians' duty toward patients 123
financial obligations to patients 140
Pleasure-seeking and suicide 220
Politics and eyestrain theory 276
Practitioner, general, and eyestrain theory 248
Preface v
Presbyopia, influence of, on eyestrain 78
Prevention is the true ophthalmology 28
Professional and successful life wrecked by ill-fitting glasses . . 157
Prophylaxis of scoliosis 34
Psychic symptoms and migraine 284
Ptosis and eyestrain 56

Quack physician partner of optician 367
Quacks, professional responsibility for 154, 251

Reading in overlit and underlit hospital wards 352
Refraction, doctor of 365
Resection of the infraorbital and supraorbital nerves for eye-strain 101
Responsibility for quacks 154, 251
Rheumatism and eyestrain 176
Rhythm of muscle contraction in eyestrain 337

School-pressure and suicide rate 217
Scoliosis (see also "curvature, spinal" and "spinal curvature")
and dextrocularity 25
and epilepsy 154
and eye-defects 25, 33, 39
and eyestrain 150, 168, 250
and suicide. 204
due to eyestrain. 35
prophylaxis of 34, 43
therapeutics of functional stage 44
Scotoma scintillans and migraine 283
Silence, a conspiracy of 375
Sims and refractionists, cases paralleled 383
Sinistrality 24
Sinistrocularity 24
"Sinking spells," "thousands of them," sickheadache, vomiting, etc., due to eyestrain 173
Sleeping in lighted rooms 353
Sociology and the old ophthalmology, ... 14
Spectacle-peddler, the confidence-man as 361
Spectacles as therapeutic agents 355
hygienic use of 353
ill-fitting, wreck professional life 157
Spinal curvature (see also "scoliosis" and "curvature, spinal")
due to eyestrain 33, 35
Stercoraceous vomiting due to eyestrain. 149
Strabismus and eyestrain 67
caused by ametropia 78

Study of the contributions to ophthalmology made by the American Ophthalmological Society during the last 31 years . . 233
Subnormal accommodation and eyestrain 108, 309
Suicide and biologic evolution 184
and city life. 190, 211
and civilization 187, 210
and country life 190
and disease 189
and evolution 184
and eyestrain 207
and headache 208
and insanity 188
and migraine 208
and occupation 192, 211
and pleasure seeking 220
and school-pressure 217
and scoliosis 204
and secret drug-taking 201
and tobacco. 201
and venereal disease 203
classification of causes of 197
clinical suggestions with regard to 222
in children 219
in the United States, causes of 220
mysteries and sources of 183
rate, influence of age upon 195, 214
influence of marriage upon 194
in males and females 194, 213
statistics, illogicalities of 202
Surgery, not most important part of ophthalmic practice 239
Surgical ophthalmic criminal 362
Symptom-complex of migraine 283

Tenotomomaniac 368
Ten types of ophthalmic charlatanism 361
Textbooks attitude of, to eyestrain theory 262

Therapeutics of spectacles in hospitals 355
Thirty-five years of treatment by seventeen physicians for strabismus, tinnitus, headache, indigestion, eyestrain, etc. . . 67
Tinnitus and eyestrain 67, 70
Tobacco and suicide 201
Torticollis and spinal curvature due to eyestrain 35
Treatment of eyes, errors in 142
"Typical" cases of disease 282

United States, causes of suicide in 220
Uterine disease and eyestrain 176
retroversion and eyestrain 115

Venereal diseases and suicide 203
Vision and locomotion, relation of 11
Vomiting and eyestrain 173
stercoraceous, due to eyestrain 149

Walking cure for eyestrain 77
Wilson, H. Augustus: The ocular factors in the etiology of spinal curvatures 33

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